WILD FLOWERS
OF THE BRITISH ISLES

H. ISABEL ADAMS

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THE BUTTERCUP FAMILY. (ORDER 1, RANUNCULACEÆ.)

CALYX of usually 5 SEPALS, not united (free), often brightly coloured (petaloid), inserted below the seedcase (hypogynous).

COROLLA of usually 5 PETALS, free, often with one or more spurred at the base, as in the columbine, inserted below the seedcase (hypogynous), sometimes absent.

STAMENS numerous, inserted below the seedcase (hypogynous).

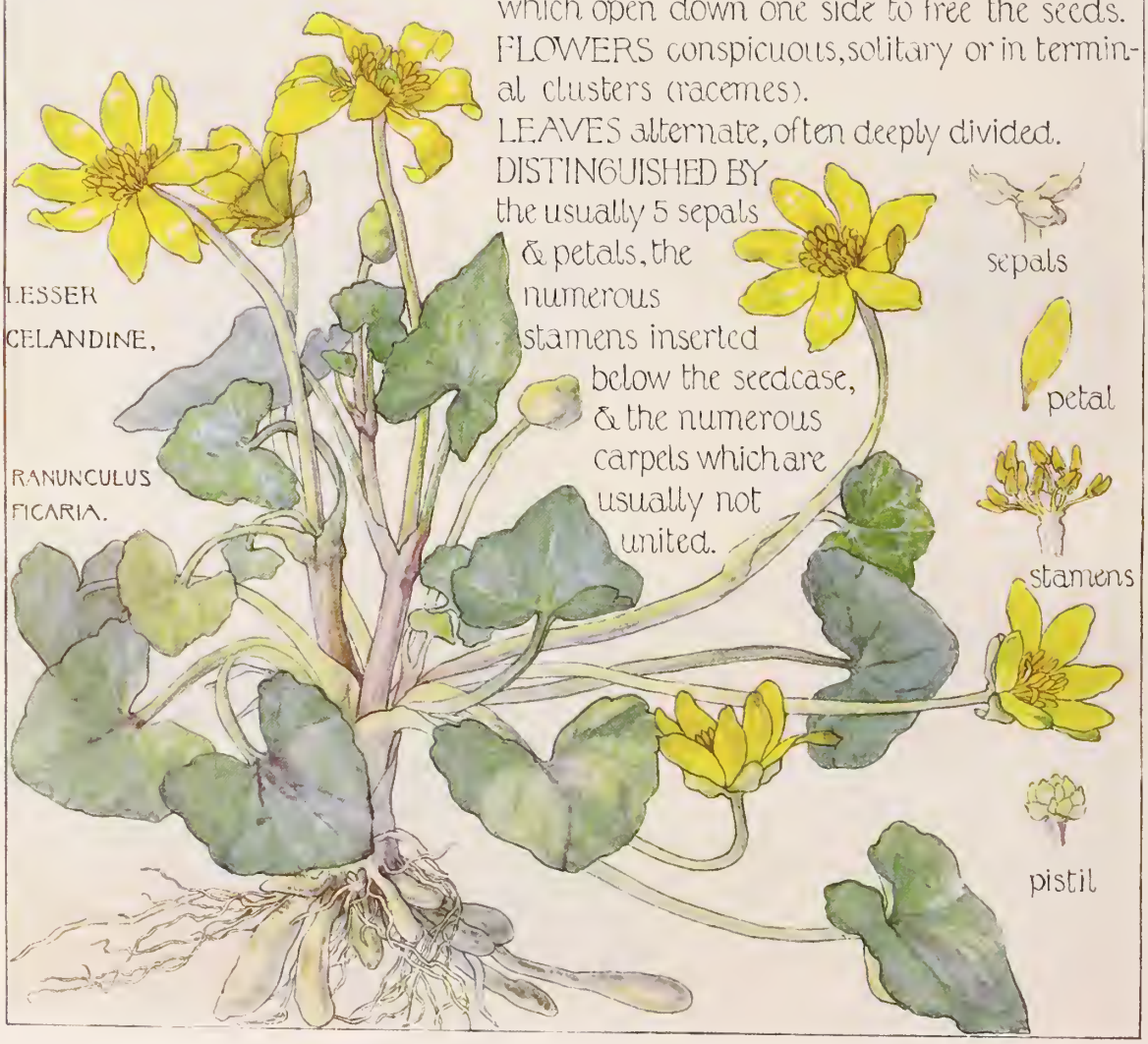
PISTIL of many CARPELS, usually not united, each composed of a 1-celled seedcase (ovary) terminating in a style & stigma or in a stigma only.

FRUIT a head of achenes, small, dry, 1-seeded fruits which do not open to free the seed but decay (indehiscent), or a head of follicles, dry, many-seeded fruits which open down one side to free the seeds.

FLOWERS conspicuous, solitary or in terminal clusters (racemes).

LEAVES alternate, often deeply divided.

DISTINGUISHED BY the usually 5 sepals & petals, the numerous stamens inserted below the seedcase, & the numerous carpels which are usually not united.



LESSER CELANDINE,

RANUNCULUS FICARIA.

sepals

petal

stamens

pistil

WILD FLOWERS OF THE BRITISH ISLES

ILLUSTRATED AND WRITTEN
BY H. ISABEL ADAMS, F.L.S.
REVISED BY JAMES E. BAGNALL, A.L.S.

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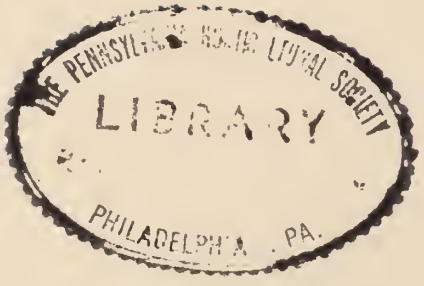

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"*Flower in the crannied wall,*
I pluck you out of the crannies;—
Hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is."

ALFRED TENNYSON.

The author wishes to acknowledge gratefully the unfailing kindness of her many friends in supplying her with the necessary specimens of flowers from which these studies have been made. Especially must she thank Mr. James E. Bagnall, A.L.S., for his unselfish and generous help, both in finding the flowers for painting and in revising the text; and Mr. John Humphreys, F.L.S., for his unstinting aid and sympathy during the whole time this work has been on hand. Her best thanks are also due to Mr. D. A. Jones, F.L.S., Miss Gingell, Mr. E. Cleminshaw, and Miss Palmer. Nor can she refrain from adding a word of gratitude for the skill and care which have been bestowed on the reproduction of her drawings.

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DESCRIPTIONS OF BOTANICAL TERMS

The Vegetable Kingdom is divided into two great groups—plants with flowers (Phanerogams) and those without flowers (Cryptogams). It is with the first group only that this book deals.

The flowering plants (Phanerogams) are divided into natural groups, according to their structure, called **Families** or **Orders**. Every Family is further divided into groups (genera), each one of which is called a **genus**, and each genus is composed of individual plants called **species**. A further sub-division of the species into **varieties** is made in some instances, but descriptions of varieties have not been given in this work. In describing the members of each family, in every instance, first the English or popular name of the flower is given and then the scientific name, followed by the abbreviation of the name of the botanist who first named the genus or species, as given in the last (the 9th) edition of the London Catalogue of British Plants.

The construction of the plants with which we have to deal is quite simple. They all consist of a **root, stem, leaves** with or without **stipules** or **sheaths, flowers** with or without **bracts**, and **fruits.**

The **root** is the descending part of the plant, which penetrates the earth, and absorbs food for the nourishment of the plant.

The **stem** is the ascending portion of the plant and may be branched or unbranched; it bears the leaves, flowers, and fruit, and conducts the food to them from the root. When a stem runs along the ground and produces roots and leaves which form another plant it is said to be a **runner.**

A **node** or joint is the point on the stem at which a leaf or leaves are given off.

The **axil** is the upper angle made by the leaf-stalk with the stem.

The **leaf** is a flat, usually thin structure, consisting of a spreading blade (*lamina*), attached with or without a stalk (*petiole*) to the stem, on which it is arranged in different ways.

A **leaf** is :—

simple when the blade consists or a single piece, as in the Lesser Celandine and Wallflower;

compound when the blade is divided into distinct leaflets; when divided to the midrib into distinct leaflets the leaf is said to be **pinnate**, as in the Rose; and when divided to the base into distinct leaflets the leaf is said to be **palmate**, as in the Buttercup;

entire when the margin of the blade is not cut nor lobed, as in the Wallflower;

serrate when the margin is slightly cut into sharp teeth, as in each leaflet of the Rose;

lobed when the margin is more or less deeply cut into **segments** or lobes, but not divided into distinct leaflets, as in the Shepherd's Purse.

A **stipule** is a scale- or leaf-like body situated at the base of the leaf-stalks, or on the joints (nodes) of the stem; when present there are generally two to each leaf.

A **sheath** is the flattened and expanded base of the leaf-stalk, which sometimes, as in the Parsley Family (Umbelliferæ), completely surrounds the stem.

A **flower**, when perfect, is composed of four parts, the **calyx**, **corolla**, **stamens** and **pistil**, which are placed together in circles, and usually situated on the top of a flower-stalk (*peduncle*); sometimes, however, they are found placed immediately upon the stem, when they are said to be *sessile*.

The **calyx** is the outermost, and consists of a circle of leaf-like parts called **sepals**; they are usually green, but sometimes they are brightly coloured, as the petals are, and then they are called *petaloid*; they may be free from one another or entirely or more or less united, and they vary in shape.

The **corolla** is inside the calyx and is composed of a circle of leaf-like parts called **petals**, which are usually gaily coloured and of a more delicate consistency than the sepals; they may be free from one another or entirely or more or less united, and they vary very much in shape.

These two circles of organs are the floral leaves which protect the essential organs of the plant. They are of no vital use, and all flowers do not have them. They are for the protection of the stamens and pistil, and their beautiful colours and markings are to attract insects which take the pollen from one flower to another and so fertilise the plant.

The **stamens** come next and consist of a varying number of stalks, called **filaments**, each surmounted with an oblong or rounded case, called an **anther**, which contains the pollen; sometimes the filaments are long and thread-like, sometimes they are united entirely, or more or less, into a sheath surrounding the pistil; the anthers vary in size and shape and may also be free from one another or united together. The stamens are the male or fertilising organs.

The **pistil** forms the centre of the flower and is composed of one or more **carpels** which may be free from one another, or entirely, or more or less, united together; each carpel consists of a seedcase, called the **ovary** (which contains the ovules or unfertilised seeds); a stalk-like column, of varying length, called the **style**, which is occasionally absent; and crowning all a structure varying in shape known as the **stigma**; when mature the stigma becomes sticky, and to it adhere the grains of pollen, brought by insect or wind, which are necessary to fertilise the ovules and so develop the seeds. The pistil is the female or fruit-bearing organ.

A flower is said to be **perfect** when all these four parts are present, as in the Buttercup, and **imperfect** when any of the parts are wanting, as in the White Bryony. It is said to be **regular** when the petals are all the same shape and size, and **irregular** when they differ in shape and size.

The **receptacle** is the expanded apex of the flower-stalk on which the parts of the flower are placed; it may be flat, convex, or concave; when convex it is sometimes very little larger than the top of the stalk, but at other times it is greatly expanded, as in the Teazle and Daisy Families (Dipsaceæ and Compositæ), when instead of one flower a whole colony of little flowers is clustered upon it.

A **bract** is a modified leaf borne on the flower-stalk, usually much smaller than the ordinary leaf and generally undivided; sometimes scale-like; it may be green, or coloured as the petals, when it is said to be petaloid; there may be one or more up the flower-stalk, as in the Violet,

or there may be many immediately surrounding the flower or flower-cluster, as in the Potentilla or Daisy.

The **fruit** is the seedcase (ovary) and other parts of the flower which remain and develop with it after the ovules have been fertilised. The ovules, when fertilised, develop into the seeds. Fruits are **dry**, or **succulent**; they may split when ripe, to free the seeds, when they are said to be *dehiscent*, or they may simply decay, when they are said to be *indehiscent*.

The principal kinds of **dry fruits** are:—

The **achene**, a small, dry, 1-seeded fruit, consisting of a single carpel, which does not open to free the seed but decays (indehiscent); as in the Buttercup.

The **follicle**, a dry, many-seeded fruit, consisting of a single carpel which opens (dehisces) down one side to free the seeds; as in the Columbine and the Marsh Marigold.

The **pod** or **legume**, a dry, few- or many-seeded, 1-celled fruit, more or less flattened, consisting of one or two carpels and opening (dehiscing) down both sides, when ripe, to free the seeds; as in the Pea.

The **siliqua**, a long, and the **silicula**, a short, dry, few- or many-seeded fruit, consisting of two carpels; divided lengthwise into two cells by a thin partition (*replum*), to either side of which the seeds are attached; and opening (dehiscing) from the base to the apex by two valves. Examples of the siliqua are to be found in the Wall-flower, Stock, Cabbage, etc., and of the silicula in Sweet Alyssum, Shepherd's Purse, etc.

The **capsule**, a dry, roundish, many-seeded fruit, consisting of several united carpels, opening (dehiscing) from the top by valves or pores; as in the Violet and the Poppy.

The **nut**, a hard, dry, 1-seeded fruit, not opening but decaying to free the seed (indehiscent); it is frequently surrounded with a hard membranous structure called the *cupule*, as in the beech or hazel.

The principal kinds of **succulent fruits** are:—

The **berry**, a more or less round, fleshy fruit, the seeds being embedded in the fleshy substance; as in the honeysuckle.

The **drupe**, a roundish fleshy fruit, consisting of a fleshy juicy exterior and an inner hard stone containing one or rarely two seeds; as in the Plum.

The fruit of the Blackberry, Raspberry, etc., consists of a number of small drupes clustered together on an elongated receptacle.

The **pome**, a fleshy fruit consisting of a fleshy, juicy exterior (formed by the upgrowth of the receptacle), enclosing one or several brittle, horny, one- or two-seeded seedcases; as in the Apple and the Pear.

THE BUTTERCUP FAMILY

[ORDER I. RANUNCULACEÆ]

THE essential characteristics of the Buttercup Family lie in the numerous stamens which are situated below the carpels, and in the numerous carpels, which are not united, and which form a cluster or head of small dry fruits (achenes or follicles). These two essentials serve to define the Buttercup both from the Rock-Rose and the Rose Families.

We have, of course, a few exceptions, but they are very few. In the Mousetail (Myosurus) there are but few stamens; in some of the Larkspurs (Delphinia) there is only one carpel, so that the fruit (a follicle) is solitary; and in the Baneberry (Actæa) there is also only one carpel, which develops into a many-seeded berry.

The order is a large one, and its members are found all over the globe, but principally in temperate climates. The flowers are usually conspicuous, many being very beautiful, and a great many of the different species are to be found in our gardens, among which the Clematis, Hepatica, Anemone, Pheasant's Eye (Adonis), Ranunculus, Bachelor's Button, and Golden Ball (Trollius), Christmas Rose (Helleborus), Winter Aconite (Eranthis), Columbine (Aquilegia), Larkspur (Delphinium), Monkshood (Aconitum), Pæony (Pæonia), and Love-in-a-mist (Nigella) are common everywhere.

Many of the species have a watery and acrid juice, and some are very poisonous; the Celery-leaved Crowfoot (Ranunculus sceleratus) and Upright Buttercup (Ranunculus acris) have a slightly poisonous juice, but the Monkshood (Aconitum) and all the Hellebores (Helleborus) abound in virulent poison, and were considered of great medicinal value. Some species of the Monkshood (Aconitum) were known to the ancients, and they are believed to have employed them as poisons.

The Magnolias and Tulip Trees of our garden belong to an order very near akin to the Buttercup. The Magnolias are glorious evergreen trees, native to America, and differ from the Buttercup tribe in having two stipules protecting their leaf-buds, and in the numerous carpels uniting into a cone-like fruit, from which the seeds often hang down in long cords.

CLEMATIS, LINN. Flowers solitary or in clusters. Sepals 4, rarely 5–8, brightly-coloured, petal-like (petaloid); petals 0; stamens numerous; carpels numerous, each tipped with a feathery style which lengthens in fruit. Fruit a head of achenes (small, dry, 1-seeded fruits, which do not open to free the seeds, but decay), each being tipped with a long, feathery style. Shrubs with woody stems and opposite leaves. [*Plate* 2.

Traveller's Joy, Old Man's Beard. (Clematis Vitalba, Linn.)—The only British species (as just described). The flowers growing in numerous loose clusters (panicles); the sepals 4, downy, greenish-white, like petals (petaloid); the woody stem often climbing to a considerable height by means of its twisting leaf-stalks; the leaves opposite, and divided from the midrib into 3–5 egg-shaped (ovate), stalked leaflets (pinnate), which are usually coarsely toothed. Sweet scented.

Common on chalky or limey soil. Hedges or among bushes. July—August. Shrub.

MEADOW-RUE. (THALICTRUM, LINN.)—Flowers small, in terminal clusters. Sepals 4–5, brightly coloured (petaloid); petals 0; stamens numerous, yellow; carpels few, 1-seeded. Fruit an achene. Perennial herbs with alternate, much divided leaves, the leaf-stalks having stipules.

Alpine Meadow-rue. (Thalictrum alpinum, Linn.)—As just described. The small drooping flowers growing in a narrow, graceful cluster; the 4 sepals pale purplish-brown, petal-like (petaloid); the stamens numerous, long, hanging down, with bright yellow anthers; the stem 3–9 inches high, slender, wiry, and unbranched; the leaves stalked, divided from the base into three distinct stalked leaflets, which are similarly divided (bi-palmate), the leaflets being small, roundish, and bluntly toothed.

Rare. Mountains in Wales, the north of England, Scotland and Ireland. July—August. Perennial.

Sand-dune Meadow-rue. (Thalictrum dunense, Dum.)—The flowers small and drooping, in loose clusters up and terminating the stem; the 4 sepals of a pale-purplish colour, like petals (petaloid); the stamens numerous with bright yellow anthers; the stem 6–18 inches high, branched, wiry, furrowed; and the leaves with stipules, divided to the midrib into distinct stalked leaflets, which are again and again similarly divided (tri-pinnate), the leaflets being triangular and toothed.

Rare. On sandy sea-shores. June—August. Perennial.

Hill Meadow-rue. (Thalictrum collinum, Wallr.)—A very similar species to the Sand-dune Meadow-rue (Thalictrum dunense), differing in having a narrower cluster of flowers, the flowers being more erect, and the whole plant being larger.

Rare. Stony places, chalky banks. June—August. Perennial.

Greater Meadow-rue. (Thalictrum majus, Crantz.)—The flowers in loose leafy clusters terminating the stem and branches (compound raceme); the sepals 4, greenish-yellow, like petals (petaloid); the stamens numerous. [As described in the genus Meadow-rue (Thalictrum).] The stem 3 feet high, solid, branched, and leafy; the leaves divided to the midrib into distinct leaflets, which are again and again similarly divided (tri-pinnate), the leaflets being large and variable in shape, 3–5 lobed; with stipules.

Very rare. In stony, damp places, chiefly in the north. July—August. Perennial.

Koch's Meadow-rue. (Thalictrum Kochii, Fr.)—A similar plant to the Greater Meadow-rue (Thalictrum dunense), but having no leaves among the flowers, a hollow stem, and smaller leaflets.

THALICTRUM FLAVUM.
WOOD ANEMONE.
ANEMONE NEMOROSA.
TRAVELLER'S JOY.
OLD MAN'S BEARD.
CLEMATIS VITALBA.
YELLOW MEADOW RUE.

Local, only growing in one or two places in the Lake district, near Ambleside and Keswick. July—August. Perennial.

Yellow Meadow-rue. (Thalictrum flavum, Linn.)—Flowers erect, terminating the stem and branches in a compact cluster (corymb); the sepals yellow, like petals (petaloid); the stamens numerous and yellow. [As described in the genus Meadow-rue (Thalictrum).] Stem 2–4 feet high, furrowed and branched; the leaves large, divided to the midrib into entire leaflets, which are again similarly divided (bi-pinnate), the leaflets being 3-lobed and longer than broad; with stipules. [*Plate* 2.

Not uncommon. Banks of rivers and ditches. July—August. Perennial.

WIND-FLOWER. (ANEMONE, LINN.)—Flowers solitary on leafless stalks from the root (scapes), with three leafy, lobed bracts about an inch below each flower. Sepals 4–20, brightly coloured, like petals (petaloid); petals 0; stamens numerous; carpels numerous, each terminated with a style, which is sometimes feathery, and which remains and lengthens with the fruit. Fruit a head of achenes, each achene terminated with the style. Perennial herbs, with the leaves all from the root (radical) and deeply lobed.

Pasque-flower. (Anemone Pulsatilla, Linn.)—As just described. The flowers 1½ inches across, solitary, drooping in bud, and only opening in bright sunshine; the bracts on the flower-stalks lobed to the base (palmatifid) into narrow segments; the sepals 6, purple, like petals (petaloid), silky outside; the stamens numerous and yellow, each fruit (achene) terminated with the lengthened feathery style 1½ inches long, the leaves all from the root (radical) and divided to the midrib into entire leaflets, which are again similarly divided (bi-pinnate), each leaflet being lobed into narrow segments (pinnatifid).

Rare. Very local. Chalky downs, or on limestone. March—June. Perennial.

Wind-flower, Wood Anemone. (Anemone nemorosa, Linn.)—A similar species, with the solitary flowers erect; the sepals 6–9, white tinged with pink or purple, like petals (petaloid); the stamens yellow; the achenes terminated with the short styles, which are not feathery; the bracts on the flower-stalk leafy and divided into 3-lobed leaflets; the leaves few, all from the root (radical), divided from the base into three distinct lobed leaflets (palmate). [*Plate* 2.

Very common. Woods and bushy places. March—May. Perennial.

There are two other species of Anemone occasionally found, one blue (**Anemone apennina,** Linn.), the other yellow (**A. ranunculoides,** Linn.), but they are neither of them natives.

***PHEASANT'S-EYE. (ADONIS, LINN.)**—Flowers red or straw-colour, solitary, terminating the stem and branches. Sepals 5, coloured like petals (petaloid); petals 5–10; stamens numerous; carpels many, 1-seeded. Fruit a head of achenes. Herbs with much-divided leaves.

***Common Pheasant's-eye. (Adonis autumnalis, Linn.)**—Not a native. As just described. The petals scarlet, with dark purple bases, and the leaves twice or thrice deeply lobed towards the midrib into narrow segments (bi- or tri-pinnatifid).

Rare. Local. In corn-fields, especially on chalk. September. Annual.

MOUSETAIL. (MYOSURUS, LINN.)—Flowers small, yellowish, clustered in dense spikes on leafless stalks from the root (scapes). Sepals 5–7, with a small spur at the base; petals equal in number to the sepals, narrow, tubular at the base; stamens few; carpels numerous. Fruit a spike of achenes. Annual herbs, with all the leaves from the root (radical).

Common Mousetail. (**Myosurus minimus, Linn.**)—The only British species (as just described). The flower stalks (scapes) 1–5 inches high, the petals pale greenish-yellow, and the leaves undivided, narrow and fleshy.
Rather rare. Sandy cornfields and gravel pits, in the eastern counties. April—June. Annual.

MARSH MARIGOLD. (**CALTHA, LINN.**)—Flowers large, few, yellow, in clusters. Sepals 5 or more, brilliant yellow, like petals (petaloid); petals 0; stamens numerous; carpels 5–10, many-seeded. Fruit a head of follicles (dry, many-seeded fruits, opening down one side). Smooth herbs, with the leaves chiefly from the root (radical), stalked, heart-shaped (cordate), growing in damp places. The root stout, creeping.

Marsh Marigold, King-cup, Water Blobs, Water Caltrops, Mary-Buds, Meadow Rout. (**Caltha palustris, Linn.**)—The only British species (as just described), of which there are five or six varieties, the differences between which are very slight. The golden-yellow flowers are from 1–2 inches across; the stems from 8–18 inches high, thick and juicy; the upper leaves stalkless (sessile), the root leaves large, stalked, roundish, heart-shaped (cordate) at the base or kidney-shaped (reniform), all with more or less scalloped (crenate) margins and membranous stipules. [*Plate* 3.
Very common. Marshy places, by the sides of streams, pools, &c. March—June. Perennial.

BUTTERCUP, CROWFOOT, SPEARWORT, ETC. (**RANUNCULUS, LINN.**)—Flowers in the British species yellow or white, in very loose terminal clusters (panicles); sepals 5, rarely 3; petals 5 or more, with a honey bag (nectary) at the base, white or yellow; stamens numerous, yellow; carpels many, 1-seeded. Fruit a head of achenes. Herbs with entire, lobed, or compound leaves, sometimes with membranous stipules.

Section 1.—Water Plants with White Petals which have Yellow Bases.

This is a puzzling group of plants in which there are about 10 species, which with their varieties amount to 24 different plants. The most noticeable differences are in the leaves and the size of the flowers. Only a few, pointing out the principal characteristics, will be described here.

Water Crowfoot. (**Ranunculus circinatus, Sibth.**)—The flowers small; no floating leaves, the leaves under water (submerged) almost stalkless (sessile), round in outline, divided into short narrow (linear) segments spreading in one flat rigid plane when taken from the water.
Common. Ponds. June—August. Perennial.

Water Crowfoot. (**Ranunculus fluitans, Lam.**)—A similar species. The flowers large; the floating leaves none; the leaves under water (submerged) with short stalks, narrowly wedge-shaped, divided into long, narrow (linear), rigid, parallel segments.
Common. Rivers, running water. June—August. Perennial.

Water Crowfoot. (**Ranunculus heterophyllus, Web.**)—Another similar species. The flowers large; the floating leaves on long stalks, round and deeply 3-lobed, the leaves under water (submerged) much cut into narrow (linear) segments, which collapse when taken from the water.
Not common. Ponds and ditches. June—August. Perennial.

Water Crowfoot. (**Ranunculus peltatus, Schrank.**)—Another similar species. The flowers large; the floating leaves on long stalks, kidney-shaped (reniform) and heart-shaped (cordate) at the base, cut into 3 lobes, the side lobes being again lobed, and all with scalloped

MARSH MARIGOLD,
KING CUP
WATER BLOBS,
MARY BUDS,
MEADOW
ROUT,
WATER
CALTROPS,
CALTHA PALUSTRIS.
WATER CROW-
FOOT,
RANUNCULUS
PELTATUS
v. floribundus
LESSER
SPEAR
WORT,
RANUNCULUS
FLAMMULA.

(crenate) edges; the floating (submerged) leaves repeatedly divided into narrow (linear) segments, not collapsing when taken out of the water. [*Plate* 3.

Common. Ponds. June—August. Perennial.

Water Crowfoot. (Ranunculus hederaceus, Linn.)—Again another similar species. The flowers very small and all the leaves broadly kidney-shaped, heart-shaped (cordate) at the base, and 5-lobed.

Common. Ditches and wet places. June—August. Perennial.

SECTION II.—LAND PLANTS WITH YELLOW FLOWERS.

Celery-leaved Crowfoot. (Ranunculus sceleratus, Linn.)—The flowers very small, $\frac{1}{4}$-inch across, terminating the stem and branches; the sepals 5, turned back, green, as long as the petals; the petals 5, pale yellow; the fruit an oblong head of very small achenes. [As described in the genus Buttercup, Crowfoot, etc. (Ranunculus).] Stem 1–2 feet high, hollow, thick, full of a bitter juice, with smooth, glossy leaves divided from the base into 3-deep lobes (palmatifid) with scalloped (crenate) margins. Smelling like celery. Poisonous.

Common. Wet places, ditches. May—September. Annual.

Lesser Spearwort. (Ranunculus Flammula, Linn.)—The flowers $\frac{1}{2}$–1 inch across, in loose terminal clusters, or nearly solitary; the sepals 5, yellow; the petals 5, yellow. [As described in the genus Buttercup, etc. (Ranunculus).] The stem 9 inches to 2 feet high, creeping at the root, then erect, hollow, furrowed, slightly branched; the upper leaves stalkless (sessile), undivided, very narrow (linear), and slightly toothed; the lower ones stalked and egg-shaped (ovate). Varying from a juicy, slightly thick-leaved to a dry grass-like plant, according to where it grows. [*Plate* 3.

Very common. Damp pastures, ditches, and marshes. June—September. Perennial.

Adder's-tongue Spearwort. (Ranunculus ophioglossifolius, Vill.)—A similar plant, with smaller flowers, broader leaves, and achenes having small raised dots on their surface. Only found in Jersey.

Creeping Spearwort. (Ranunculus reptans, Linn.)—A slender creeping plant with small flowers, $\frac{3}{8}$-inch across, and a few small, narrow (linear) leaves.

Very rare. Sandy shores of lakes in Scotland. June—September. Perennial.

(Ranunculus petiolaris, Marshall.)—A similar species, with its earlier root (radical) leaves reduced to pointed stalks.

Very rare. Under water near Scotch lochs.

Greater Spearwort. (Ranunculus Lingua, Linn.)—The flowers very large, 1–2 inches across, terminating the stem and branches; sepals 5; petals 5, rich yellow; stamens numerous, golden yellow; carpels numerous. The stem 2–5 feet high, hollow, furrowed; the leaves of the stem narrowly lance-shaped, faintly toothed (dentate), stalkless (sessile), 6 inches to 1 foot long; those of the root (radical) egg-shaped, stalked.

Fairly common. Sides of pools, bogs. June—September. Perennial.

Goldilocks, Sweet Wood Crowfoot. (Ranunculus auricomus, Linn.)—The flowers when perfect 1 inch across; the sepals 5, yellow; the petals 5, golden yellow, frequently deformed; the stamens numerous. The stems numerous, 6–10 inches high, slender and smooth; the leaves of the stem stalkless (sessile), and lobed from the base into 5–2 narrow segments (palmatifid), those of the root (radical) on long stalks, roundish or kidney-shaped (reniform), deeply or slightly lobed.

Fairly common. Woods and copses. April—May. Perennial.

Upright Buttercup. (Ranunculus acris, Linn.)—The flowers 1 inch across, yellow, terminating the stem and branches; the sepals 5, spreading, downy; the petals 5, spreading; the stamens and carpels numerous. Stem 1–3 feet high, hairy, not furrowed; the leaves of the stem 3-cleft from the base into 3 narrow (linear) lobes; those of the root (radical) divided from the base into 3–7 deeply cut lobes (palmate). Root fibrous. [*Plate* 4.
Very common. Meadows and on hill-sides. May—September. Perennial.

Creeping Buttercup. (Ranunculus repens, Linn.)—Differing from the Upright Buttercup (Ranunculus acris) in having less spreading petals, more cup-shaped, a furrowed shorter stem, branches which run along the ground, and root and form another plant (runners), upper leaves with rather broader segments, and lower leaves divided from the base into 3 stalked lobes (ternately lobed), which are usually 3-cleft (palmate), the centre lobe having the longest stalk.
Very common. Meadows, hedgerows, way-sides. May—August. Perennial. [*Plate* 4.

Bulbous Buttercup. (Ranunculus bulbosus, Linn.)—Differing from the Upright and Creeping Buttercups in having turned-back sepals, a furrowed stem about 1 foot high, upper leaves divided from the base into 3 lobes which are again lobed, the lower leaves like those of the Creeping Buttercup (palmate), but more deeply lobed. Root bulbous, giving off thick fibres.
Very common. Dry pastures and downs. May—August. Perennial. [*Plate* 4.

Pale Hairy Buttercup. (Ranunculus sardous, Crantz.)—Another similar species having the sepals turned back (reflexed), hairy; the petals pale yellow, 1 inch across; the fruit a head of achenes, each achene with small warts near the margins (tubercled). Stem 6–18 inches high, hairy, furrowed, the lower leaves stalked, and divided from the base into 3 lobes (ternate), and the upper ones stalkless (sessile), 3–5 lobed.
Rather rare. Damp meadows, roadsides. June—October. Annual.

Small-flowered Crowfoot. (Ranunculus parviflorus, Linn.)—Differing from the Pale Hairy Buttercup (Ranunculus sardous) in having flowers only $\frac{1}{4}$ inch across, a prostrate hairy stem, roundish or kidney-shaped (reniform) leaves, less divided, and hooked warts (tubercles) on the achenes.
Not common. Dry gravelly or sandy places. May—August. Annual.

Corn Crowfoot. (Ranunculus arvensis, Linn.)—Another similar species, with 5 sepals, yellowish-green and spreading; 5 petals, pale yellow, not spreading, but cup-shaped; and the achenes few and very spinous; and the leaves all deeply 3-cleft from the base into narrow lobes.
Poisonous. [*Plate* 4.
Common. Ploughed fields. May—August. Annual.

Lesser Celandine. (Ranunculus Ficaria, Linn.)—Flowers about 1 inch across, on juicy stalks bearing few or no leaves; the sepals usually 3; the petals 8–12, of a glossy deep yellow; the stamens numerous; the fruit a head of achenes; the flower stems short and juicy, the leaves being chiefly from the root (radical), stalked, kidney-shaped (reniform) or heart-shaped (cordate), and scalloped (crenate). Roots in oblong tubers. [*Plate* 1
Very common; one of our earliest spring flowers. March—May. Perennial.

GLOBE-FLOWER. (TROLLIUS, LINN.)—Flowers large, yellow or lilac, terminal. Sepals 5–15, like petals (petaloid); petals 5–15, minute, narrow, clawed; stamens numerous; carpels 5 or more. Fruit a head of 5 or more follicles (dry, many-seeded fruits, opening down one side). Perennial herbs, with alternate leaves deeply lobed from the base (palmate).

Mountain Globe-flower, Golden Ball. (Trollius europæus, Linn.)—The only British species (as just described). The flowers 1–1$\frac{1}{2}$ inches across, round; the sepals 5–15,

FIELD
CROWFOOT.
RANUNCULUS
ARVENSIS.
RANUNCULUS
REPENS.
RANUNCULUS.
ACRIS
var. vulgaris.
RANUNCULUS
BULBOSUS

GOLDEN
BALL
MOUNTAIN
GLOBE FLOWER,
TROLLIUS EUROPÆUS.
WINTER
ACONITE
ERANTHIS HYEMALIS.
STINKING
HELLEBORE,
SETTERWORT,
HELLEBORUS FŒTIDUS.

roundish, concave, yellow, like petals (petaloid); the stem 6 inches to 2 feet high, erect and strong; the leaves roundish, divided to the base into 5 deeply-lobed leaflets (palmate).
Rare, common in our gardens. Mountains in Wales and Scotland and the North, by the sides of streams. June—August. Perennial. [*Plate* 5.

HELLEBORE. (**HELLEBORUS, LINN.**)—Flowers in a terminal mass (corymb). Sepals 5, large, of a strong texture (herbaceous), remaining with the fruit (persistent); petals 5–12, much smaller than the sepals, tubular and slightly 2-lipped; stamens numerous; carpels 3–10. Fruit, a head of follicles (dry, many-seeded fruits, opening down one side). Perennial herbs, with leaves divided to the base (palmate). Poisonous; one of the species containing the most violent poison being the Black Hellebore (Helleborus niger), our Christmas Rose of the garden.

Green Hellebore, Bear's-foot. (**Helleborus viridis, Linn.**)—As just described. The flowers $1\frac{1}{2}$–2 inches across, few, slightly drooping, green; the 5 large green sepals spreading; the little tubular petals green; the stamens greenish yellow; the stem 1–$1\frac{1}{2}$ feet high, stout; the leaves divided to the base into 5–7 toothed leaflets (palmate), the root (radical) leaves not fully developed till the plant has done flowering. Very poisonous. [*Plate* 5.
Rare. Woods and thickets, especially on chalky soil. April—May. Perennial.

Stinking Hellebore, Setterwort. (**Helleborus fœtidus, Linn.**)—Differing from the Green Hellebore in having smaller pale green flowers, 1 inch across, the pale yellowish-green cup-shaped sepals being tipped with purple and turned back when the fruit is ripe, and leaves which are lobed and not divided to the base. The pale green stems and flowers and dark green leaves make the whole plant very noticeable and unmistakable. Very poisonous.
Rare. Woods and thickets, especially on chalky soil. March—April. Perennial.

***WINTER ACONITE.** (**ERANTHIS, SALISB.**)—Flowers solitary, pale yellow, on leafless stalks from the root (scapes), surrounded by leafy bracts (involucre). Sepals 5–8, large, equal, brightly coloured, like petals (petaloid); petals 5–8, much shorter than the sepals, tubular, 2-lipped; stamens many; carpels 5–6. Fruit a head of stalked follicles (dry, many-seeded fruits, opening down one side). Leaves all from the root (radical), round, divided to the base into 3 deeply-lobed leaflets (palmate). Root stout, creeping.

***Common Winter Aconite.** (**Eranthis hyemalis, Salisb.**)—The only species found in the British Isles (as just described). [*Plate* 5.
Rare. Though not a native, well established in many of our parks and thickets. January—March. Perennial.

COLUMBINE. (**AQUILEGIA, LINN.**)—Flowers handsome, in very loose terminal clusters Sepals 5, purplish-green; petals 5, each with a long incurved spur; stamens numerous; carpels 5, many-seeded. Fruit a head of 5 follicles (dry, many-seeded fruits, opening down one side). Perennial herbs, with the leaves, chiefly from the root (radical), divided from the base into 3 stalked leaflets.

Common Columbine. (**Aquilegia vulgaris, Linn.**)—The only British species (as just described). The petals blue, purple, or white; the stems 1–2 feet high, erect; the leaflets deeply lobed into scalloped segments. [*Plate* 6.
Rare. Woods and coppices, especially on chalky soil. May—July. Perennial.

***LARKSPUR. (DELPHINIUM, LINN.)**—Flowers showy, shortly stalked, in longish clusters (racemes), terminating the stem and branches. Sepals 5, brightly coloured, like petals (petaloid), the upper one spurred; petals 4, united, the two upper ones spurred and enclosed in the spur of the calyx; stamens numerous; carpels 1–6. Fruit 1–5 follicles (dry, many-seeded fruits, opening down one side). Herbs with alternate much-divided leaves.

***Field Larkspur. (Delphinium Ajacis, Reichb.)**—Not a true native. The only species naturalised in the British Isles (as just described). The flowers blue, white, or pink, 4–16 on a stem; the leaves of the root (radical) stalked, and those of the stem stalkless (sessile), all much divided to the base into narrow lobes. [*Plate* 6.
Very rare. Cornfields. June—July. Annual.

MONKSHOOD. (ACONITUM, LINN.)—Flowers in long terminal clusters (racemes). Sepals 5, unequal, purplish blue, like petals (petaloid), the upper one helmet-shaped; petals 2–5, the two upper tubular on long stalks included in the helmet-shaped sepal, the three lower very small or absent; stamens numerous; carpels 3–5. Fruit in a head of from 3–5 follicles (dry, many-seeded fruits, opening at one side). Perennial herbs, with leaves divided to the base (palmate) and tuberous roots. Very poisonous.

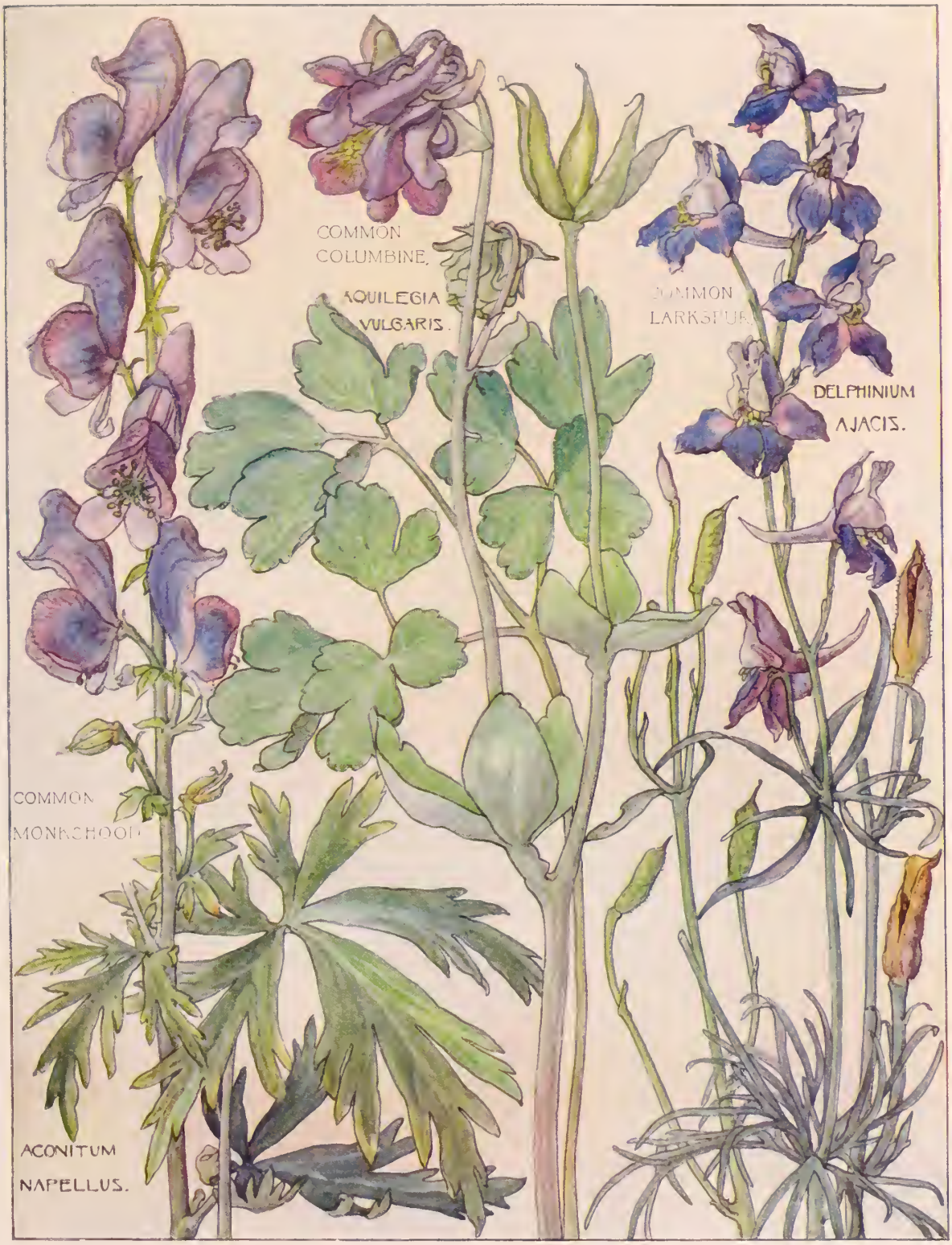
Common Monkshood, Wolf's-bane. (Aconitum Napellus, Linn.)—The only British species (as just described). The flowers 1–1½ inches across, with blackish-green anthers; the stem 1–3 feet high; the leaves divided to the base into from 3–5 deeply lobed segments (bi-palmatifid). Root black. A deadly poison. [*Plate* 6.
Rare. Shady places on the banks of streams. Common in gardens. July—August. Perennial.

BANE-BERRY. (ACTÆA, LINN.)—Flowers small, shortly stalked, growing in close succession up the stem (in a raceme). Sepals 3–5, coloured like petals (petaloid); petals 4–10, minute or absent; stamens numerous, as long as or longer than the petals; carpel 1, many-seeded. Fruit a berry containing many seeds. Erect herbs, with chiefly radical leaves, divided from the base into 3-stalked leaflets which are lobed towards the base into 3 coarsely toothed segments.

Bane-berry, Herb Christopher. (Actæa spicata, Linn.)—The only British species (as just described). The sepals and minute petals being white, the stem 1–2 feet high, and the berry purplish-black when ripe.
Very rare, local. Woods in the North of England. May—June. Perennial.

***PEONY. (PÆONIA, LINN.)**—Not a native. Flowers large and showy, solitary on long stalks. Sepals 5, unequal, remaining with the fruit (persistent); petals 5–10, very large; stamens numerous; carpels 2–5. Fruit of 2–5 follicles, often woolly. Large herbs or shrubs with divided leaves.

***Peony. (Pæonia corallina, Retz.)**—Not a native. The only species naturalised in the British Isles (as just described). The flowers about 4 inches across, crimson; the stem about 2 feet high; the leaves stalked, divided to the base into 3 distinct leaflets, which are similarly divided into 3 entire or lobed leaflets; and the root producing a cluster of carrot-like tubers.
Very rare. Not a native. Naturalised on Steep Holmes Island in the Severn. May—June. Pe ennial.


COMMON
COLUMBINE.
AQUILEGIA
VULGARIS.
COMMON
LARKSPUR.
DELPHINIUM
AJACIS.
COMMON
MONKSHOOD.
ACONITUM
NAPELLUS.

THE POPPY FAMILY

[ORDER IV. PAPAVERACEÆ]

CALYX OF 2—3 SEPALS, inserted below the seedcase (hypogynous), falling off as the flower opens (caducous).

COROLLA OF 4 PETALS, not united (free), often crumpled in bud, inserted below the seedcase (hypogynous).

STAMENS, numerous, inserted below the seedcase (hypogynous).

PISTIL OF 1 CARPEL, with the style short or absent, and the stigma divided into from 2—20 lobes, spreading ray-like, on a small flat disk, on the top of the seedcase (ovary).

FRUIT, a capsule, 1-celled with membranous divisions, opening by pores or valves, many -seeded.

FLOWERS, conspicuous, solitary or in clusters.

STEMS, with a milky juice.

LEAVES, alternate or only from the root (radical), usually divided, without stipules.

DISTINGUISHED BY the 2 sepals which fall as the flower opens, the 4 petals, the many stamens inserted below the seedcase, and the capsular fruit.

THIS family is easily recognised by its 2 sepals, 4 petals, and capsular fruit.

It is a small order, belonging chiefly to the north temperate zone, though the Prickly Poppy, the Mexican Argemone, is common all through the tropics. The vivid beauty of its gorgeous and yet delicate flowers is too well known to need description. As a weed it is an enemy to the farmer, but as a garden flower it is a perpetual joy. The brilliant little Eschscholtzia of our gardens is a member of the order.

The Poppy is known far and wide as a medicine and poison. The plants abound in a milky juice, highly narcotic in some species. It is this juice in the Opium Poppy (Papaver somniferum), which abounds in all parts of the plant, but especially in the capsule, which is opium, and from which we obtain morphia and laudanum. An invaluable drug and an insidious poison.

POPPY. (PAPAVER, LINN.)—Flowers showy, solitary, erect, drooping in bud. Sepals 2, rarely 3, falling off as the flower opens; petals 4, crumpled in bud; stamens numerous. Carpel 1, with no style, and the stigma spreading star-like into 4–20 rays on the flat disk on the top of the seedcase. Fruit a capsule opening by small pores immediately beneath the disk to free the numerous seeds. Herbs with leaves usually lobed and a milky juice.

* **Opium Poppy. (Papaver somniferum, Linn.)**—Not a native. Flower large, white, with a purple stain at the base of each petal, but varying much in colour and number of the petals

in gardens. Sepals 2, falling quickly; petals 4, crumpled in bud; stamens numerous, with filaments thickening up to the yellow anthers. Fruit a capsule, round and smooth. Stem 1–2 feet high, scarcely branched; leaves oblong, heart-shaped (cordate) at the base, clasping the stem (amplexicaul), toothed, wavy, or lobed, of a bluish-green (glaucous). This is the cultivated opium poppy, so valuable for the thick white juice with which the whole plant, and particularly the capsules, abound; this juice dries into a tough pale-brown substance, opium, invaluable among our drugs.

Rare. Not a native. Waste places, especially near the sea. June—August. Annual.

Common Red Poppy. (Papaver Rhœas, Linn.)—Flowers 3–4 inches across. Sepals 2, falling quickly; petals 4, crumpled in bud, bright scarlet, often black at the base; stamens numerous, with green anthers. Capsule smooth and roundish. Stem 1–2 feet high, with spreading hairs; leaves lobed to the mid-rib (pinnatifid), sometimes again lobed (bi-pinnatifid).

Common. Corn and other cultivated fields. June—July. Annual. [*Plate* 7.

Long Smooth-headed Poppy. (Papaver dubium, Linn.)—Very similar to the Common Red Poppy, but with rather smaller flowers, more slender and shorter stems with less spreading hairs, leaves more cut into shorter and narrower lobes, and a smooth oblong capsule.

Common. Corn and other cultivated fields. June—July. Annual.

Long Prickly-headed Poppy. (Papaver Argemone, Linn.)—Flowers still smaller, less than 2 inches across, light scarlet or rose, with deep purple-black bases, often spotted. Stamens with blue anthers. Capsule oblong, with scattered bristly hairs. [As described in the genus Poppy (Papaver).] Stem 6–10 inches high, hairs pressed to the stem; leaves very deeply lobed to the mid-rib (pinnatifid), the lobes being again and again lobed (bi- or tri-pinnatifid).

Rather common. Cornfields, waysides, especially on a sandy or gravelly soil. May—July. Annual.

Round Prickly-headed Poppy. (Papaver hybridum, Linn.)—Flowers small, $1\frac{1}{2}$–2 inches across, crimson, with a purplish-black spot at the base, and stamens with blue anthers. [As described in the genus Poppy (Papaver).] Capsule round, with spreading bristle-like hairs. Stem 10–18 inches high, with hairs pressed to the stem; leaves very deeply lobed from the mid-rib (pinnatifid), the lobes being again and again lobed (bi- or tri-pinnatfid).

Not common. Corn-fields and waste places, especially on a chalky or sandy soil. May—July. Annual.

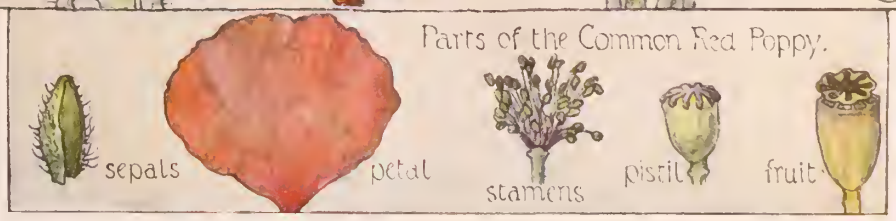
WELSH POPPY. (MECONOPSIS, VIG.)—Flowers solitary, on long stalks, drooping in bud. Sepals 2, falling when the flower opens; petals 4, crumpled in bud, soon falling (fugacious); stamens numerous; carpel with a stigma of 4–6 free spreading lobes, and a short persistent style. Fruit a capsule opening at the top by as many short valves as there are stigmatic lobes. Herbs with a yellowish juice and lobed leaves.

Common Welsh Poppy. (Meconopsis cambrica, Vig.)—The only British species (as just described). The flowers large, $2\frac{1}{2}$–3 inches across, pale yellow, and the capsule oblong, with a distinct short style crowned with the 4–6 rayed stigma. The stem 6–18 inches high, erect and slender, and the leaves on long stalks divided from the mid-rib into distinct leaflets (pinnate) with lobed segments. [*Plate* 7.

Very rare. Rocky places in Ireland, Wales and the western counties of England. June—July. Perennial.

HORNED POPPY. (GLAUCIUM, HALL.)—Flowers large and showy, with erect buds. Sepals 2, falling when the flower opens; petals 4, twisted in bud (convolute); stamens numerous; carpel

COMMON
RED
POPPY,
PAPAVER
RHŒAS.
GREATER
CELANDINE,
CHELIDONIUM
MAJUS.
YELLOW
HORNED
POPPY,
GLAUCIUM
FLAVUM.
COMMON
WELSH
POPPY,
MECONOPSIS
CAMBRICA.


Parts of the Common Red Poppy.
sepals
petal
stamens
pistil
fruit

with a long, narrow seedcase (ovary), a short style, and a 2-lobed stigma. Capsule long, narrow, pod-like, opening from top to base by 5 valves. Herbs with a bluish bloom and yellow juice.

Yellow Horned-Poppy. (Glaucium flavum, Crantz.)—The only British species (as just described). The petals rich yellow, falling very quickly (fugacious), and the capsules long, narrow, and horn-like, crowned with the 2-lobed stigma. The stem 1–2 feet high, erect, much branched, fleshy, smooth; the leaves of the root (radical) numerous, deeply lobed to the mid-rib (pinnatifid); those of the stem less deeply lobed and half clasping the stem (semi-amplexicaul), all wavy, thick, and rough, with short, thick, white hairs. The whole plant has a bluish bloom, and an orange-coloured juice with a disagreeable smell. [*Plate* 7.

Fairly common on sandy or shingly sea-shores in England and Wales. June—September. Biennial.

***VIOLET HORNED POPPY. (RŒMERIA, MEDIC.)**—Not a native. A similar genus to the Horned Poppy, with a similar long, horn-like capsule, opening from top to base by the same number of valves as there are stigmas, differing, however, in having no style, and in being crowned with a 3–4 rayed stigma.

***Common Violet Horned Poppy. (Rœmeria hybrida, DC.)**—The only species found in Britain. The flowers are large, $2\frac{1}{2}$–3 inches across, violet, the long horn-like capsule crowned with a 3-rayed stigma and opening by 3 valves, and the leaves lobed to the mid-rib, and again and again similarly lobed (tri-pinnatifid).

Naturalised in Cambridgeshire and Norfolk. Chalky fields or pits. May—June. Annual.

Very rare and not a native.

CELANDINE. (CHELIDONIUM, LINN.)—A genus consisting of the one species.

Greater Celandine. (Chelidonium majus, Linn.)—Flowers small, yellow, stalked, in terminal clusters of 3–8 together, all starting from the same point on the main stalk (simple umbel). Sepals 2, brightly coloured, like petals (petaloid), falling quickly; petals 4, yellow; stamens many; carpel 1, with a long, narrow seedcase (ovary), a very short style, and a stigma with 2 spreading lobes. Capsule narrow, pod-like, opening from the base to the top by 2 valves. Stem 2–3 feet high, branched, brittle, containing an orange-yellow juice. Leaves divided to the mid-rib into 5–7 distinct broad leaflets (pinnate), which are more or less deeply scalloped (crenated). [*Plate* 7.

Common. Waysides and waste places near houses. May—September. Perennial.

THE FUMITORY FAMILY

[ORDER V. FUMARIACEÆ]

THE genera of this family which are represented in the British Isles are easily recognised by their clusters of irregular flowers, having 2 scale-like sepals, 4 petals in unequal pairs, and 6 stamens in 2 bundles.

It is a small family of delicate smooth herbs found in the temperate parts of the world. It is but little cultivated, one of the best known cultivated genera being the graceful Dielytra.

CORYDALIS. (NECKERIA, SCOP.)—Flowers terminal, small, growing in close succession up the stem (raceme). Sepals 2, scale-like; petals 4, the uppermost of the larger pair with a spur or pouch at the base; the smaller and inner pair narrow, joining at their tips; stamens 6, united by their filaments into 2 bundles of 3 stamens each; carpels 2. Fruit a narrow, pod-like capsule, opening by 2 valves, seeds many. Herbs with brittle stems and much-divided leaves.

White Climbing Corydalis. (Neckeria claviculata, N.E.Br.)—The only native British species (as just described). The flowers small, yellowish-white, with a very short spur. The stem slender, climbing; the leaves with a bluish bloom (glaucous), each divided from the mid-rib into 3 or 4 pairs of distinct, stalked leaflets (pinnate), and ending in a branched tendril, by means of which the plant climbs on bushes to the height of several feet, each leaflet being divided from the base into 3 leaflets (palmate). [*Plate* 8.

Common. Hilly districts, stony or rocky places. April—July. Annual.

Two other species, not natives, are to be met with occasionally, the **Bulbous Corydalis (Neckeria bulbosa, N.E.Br.)**, with largish purple flowers, an unbranched (simple) stem, no tendrils, and a bulbous root; and the **Yellow Corydalis (Neckeria lutea, Scop.)**, with bright yellow flowers, many short stems, and no tendrils.

FUMITORY. (FUMARIA, LINN.)—This is a similar genus to Corydalis, differing in the sepals being larger and broader and in the seed being a round 1-seeded nut which decays to free the seed. Although in the early stages the seedcase (ovary) contains 2 seeds (ovules), only one develops.

Rampant Fumitory. (Fumaria capreolata, Linn.; F. pallidiflora, Jord.; F. Boræi, Jord.; F. confusa, Jord.; and F. muralis, Sonder.)—As just described. Flowers cream or pink, tipped with crimson-purple or purplish-rose colour, the sepals being egg-shaped, with toothed (serrate) margins, coloured like petals (petaloid). Fruit a roundish 1-seeded nut varying in length and breadth. The stem climbing by means of the twisting leaf-stalks, and the

FUMITORY FAMILY. (ORDER V. FUMARIACEÆ.)

CALYX of 2 SEPALS, falling off as the flower developes.

COROLLA of 4 PETALS, in 2 pairs, the outer pair larger, united at the base, one or both spurred, the inner pair narrow, joining at the tips, inserted below the seedcase (hypogynous).

STAMENS 6, united by the filaments into 2 equal bundles of 3 each, inserted below the seedcase (hypogynous).

PISTIL of 2 CARPELS, united into a 1-celled seedcase (ovary), & 1 style, varying in length, crowned with a slightly lobed stigma.

FRUIT a many-seeded capsule opening by 2 valves, or a round 1-seeded nut which decays to free the seed.

FLOWERS in clusters (racemes).

STEM with a watery juice, often climbing by means of its leaf-stalks.

LEAVES much divided into distinct leaflets, without stipules.

DISTINGUISHED BY its two sepals, its six petals in unequal pairs and its six stamens in two equal bundles.

COMMON FUMITORY, FUMARIA OFFICINALIS.

COMMON FUMITORY, FUMARIA OFFICINALIS.

WHITE CLIMBING CORYDALIS. NECKERA CLAVICULATA.

WHITE CLIMBING CORYDALIS, NECKERA CLAVICULATA.

leaves divided from the mid-rib into distinct stalked leaflets (pinnate), which are again and sometimes again divided in like fashion (bi- or tri-pinnate), the leaflets being deeply lobed.
Not uncommon. Hedges and cultivated ground. June—September. Annual.

Small-flowered Fumitory. (**Fumaria densiflora, DC.**)—Flowers small and densely clustered on short stems which lengthen in fruit. [As described in the genus Fumitory (Fumaria).] The sepals remarkably large in comparison with the flower, very broad, and toothed, white (petaloid); the petals whitish with a green streak and tipped with purplish-rose; the stems 6–10 inches high, and the leaves with small leaflets.
Local. Cultivated fields. May—September. Annual.

Common Fumitory. (**Fumaria officinalis, Linn.**)—Flowers in terminal clusters (racemes), lengthening in fruit. The sepals narrower than the corolla, rose-coloured (petaloid); the petals with broad tips, dark or pale rose-colour tipped with dark purple. [As described in the genus Fumitory (Fumaria).] The stem from 6 inches to 2 feet high, erect when small, or climbing, and the leaves divided to the mid-rib into distinct leaflets, which are again and again divided in like fashion (tri-pinnate). The whole plant has a bluish bloom (glaucous). [*Plate* 8.
Common. Cultivated ground, hedges, &c. May—September. Annual.

Least-flowered Fumitory. (**Fumaria Vaillantii, Loisel.; F. parviflora, Lam.**)—A similar species, with white or red flowers and very small sepals. The stems 6–10 inches high, erect, and the leaves as in the Common Fumitory, but with narrow (linear) segments.
Rare and local. Cultivated ground. June—September. Annual.

THE CABBAGE FAMILY

[ORDER VI. CRUCIFERÆ]

THIS order is easily recognised by the 4 sepals and petals, placed cross-wise, and so somewhat resembling a Maltese cross, by the 6 stamens in 3 pairs, one pair shorter than the other two, and by the pod-like fruits.

It is a large and important family, widely spread in the temperate parts of the world, chiefly in the Northern Hemisphere. Some of the species are very charming, the flowers having, in addition to their beauty, a very sweet scent, which makes them common garden favourites. Among them are the Stock (Mathiola), Wallflower (Cheiranthus), Sweet Rocket (Diplotaxis), Alyssum, Honesty, Aubrietia, Arabis, Candytuft (Iberis), and Virginia Stock.

All the species are destitute of harmful properties, and many abound in sulphur and nitrogen, and are invaluable additions to our food. Under cultivation they become some of our most useful vegetables, and supply us with Cabbages, Broccoli, Cauliflower, Brussels Sprouts, Turnip and Swede, Watercress, Radish, and Mustard and Cress for salad, and Mustard and Horse-radish for condiments.

STOCK. (**MATHIOLA, R.Br.**)—Flowers large, usually purple, shortly stalked, growing in close succession up and terminating the stem (in a raceme). Sepals 4, erect, the 2 side ones pouched at the base (gibbous); petals 4, equal, spreading on long, erect claws; stamens 6, in 3 pairs, one pair shorter than the other two; carpels 2, with a short style and a 2-lobed stigma. Fruit a long, narrow, rounded or flattened pod, divided lengthwise into 2 cells by a thin partition, to either side of which the numerous winged seeds are attached, the shell opening from base to apex by 2 valves (siliqua). Herbs or under-shrubs, downy with star-like hairs, and having entire or toothed leaves.

Great Sea Stock. (**Mathiola sinuata, R.Br.**)—As just described, the flowers 1 inch across, purple, fragrant at night; the pods flattened and dotted with glands, about 4 inches long; the stem 9 inches to 2 feet high, hoary, the upper half slightly branched, woody at the base, and the leaves oblong and densely downy, the lower ones toothed or lobed.

Rare. Sandy sea-shores. June—August. Biennial.

Hoary Shrubby Stock. (**Mathiola incana, R.Br.**)—A similar plant to the last, with flowers 1–2 inches across, pale lilac; the pods rounded and without glands, 4–5 inches long; the stem 1–2 feet high, more woody at the base, thick, very spreading, downy, and the leaves all entire, narrowly oblong, hoary with short hairs.

Rare, local. Chalky cliffs in the Isle of Wight. May—June. Perennial.

***WALLFLOWER.** (**CHEIRANTHUS, LINN.**)—Flowers large, usually orange or yellow, shortly stalked, growing in close succession up and terminating the stem (in a raceme). Sepals 4, erect, the 2 side ones pouched at the base (gibbous); petals 4, equal, spreading on long, erect

CABBAGE FAMILY. (ORDER vi, CRUCIFERÆ.)

CALYX of 4 SEPALS, in 2 circles (whorls), overlapping in bud, not united (free), the 2 side ones often pouched at the base, inserted below the seedcase (hypogynous).

COROLLA of 4 PETALS, not united (free), placed in the form of a cross (cruciate), inserted below the seedcase.

STAMENS 6, in pairs, the 2 side ones with shorter filaments than the other 4 which are equal, inserted below the seedcase (hypogynous).

PISTIL of 2 CARPELS, united into a seedcase, surmounted by the 2 united styles & 2 united stigmas, the latter being entire or 2-lobed.

FRUIT pod-like, long or short (siliqua or silicula), divided, usually lengthwise, into 2 cells, by a thin partition, to which the few or many seeds are attached, opening from base to apex by 2 valves.

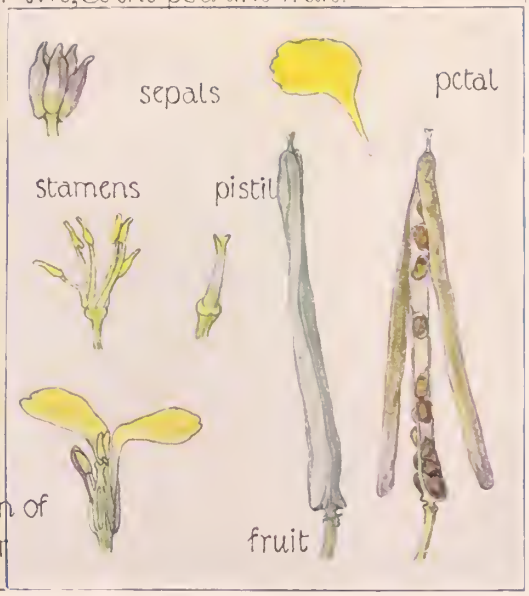
FLOWERS in shortly stalked clusters.

LEAVES alternate, without stipules.

DISTINGUISHED BY the 4 free sepals, the 4 free petals placed crosswise, the 6 stamens in pairs, one pair being shorter than the other two, & the pod-like fruit.

CHEIRANTHUS CHEIRI.

WALL-FLOWER



CRAMBE
MARITIMA.
CAKILE MARITIMA.
PURPLE
SEA-ROCKET.
SEA KALE.

claws ; stamens 6, in 3 pairs, one pair shorter than the other two ; carpels 2, with a short style and a 2-lobed stigma. Fruit a long, narrow, flattened pod, divided lengthwise into 2 cells by a thin partition, to either side of which the flattened seeds are attached, the shell opening from base to apex by 2 valves (siliqua). Herbs or under-shrubs with addressed forked hairs and entire narrow leaves.

***Wallflower. (Cheiranthus Cheiri, Linn.)**.—The only species found in Britain, but not a native. As just described. The flowers 1 inch across, yellow, with purplish sepals, sweet-scented, and the stem 6–12 inches high and woody. [*Plate* 9.

Not uncommon. Naturalised on cliffs and old walls. April—June. Perennial.

SEA-KALE. (CRAMBE, LINN.)—Flowers white, in clusters terminating the numerous branches. Sepals 4, spreading, not pouched ; petals 4, entire, with short claws ; stamens 6, in pairs, one pair being shorter than the other two ; carpels 2, style absent. Pod oblong, slightly flattened, divided transversely into 2 unequal cells by a thin partition, the shell having no valves, but simply decaying to free the seeds (indehiscent) ; the small lower cell empty and stalk-like, the upper round and 1-seeded. Herbs or under-shrubs with thick, fleshy branches and leaves.

Sea-kale. (Crambe maritima, Linn.)—The only British species (as just described). The flowers ½ inch across, white, with a purple seedcase and a greenish-yellow stigma ; the stem 1–2 feet high, thick, fleshy, branched, and the leaves broadly oval, coarsely toothed, wavy, with a strong bluish bloom (glaucous). [*Plate* 10.

This species is like our garden sea-kale, the cultivated vegetable being covered up from the light, and the blanched white stems only being eaten.

Not common. Sandy and stony sea-shores. June—August. Perennial.

SEA-ROCKET. (CAKILE, LINN.)—A genus consisting of two species. Flowers white or lilac, in long clusters (racemes). Sepals erect, the 2 outer pouched (gibbous) ; petals 4, entire, with long claws ; stamens 6, in pairs, one pair shorter than the other two ; carpels 2, style absent. Pod narrowly oblong, slightly flattened, divided transversely by a thin partition into 2 unequal cells, the shell having no valves, but simply decaying to free the seeds (indehiscent) ; each cell contains one seed, which only ripens in the upper cell. Smooth, branched, seaside annuals, with fleshy leaves, which are entire or lobed to the mid-rib (pinnatifid).

Purple Sea Rocket. (Cakile maritima, Scop.)—The only British species. As just described. The flowers ½ inch across, white or lilac, the stem 1–2 feet high, smooth, and the leaves oblong, entire or lobed to the mid-rib (pinnatifid), smooth and fleshy, with a slight bluish bloom (glaucous). [*Plate* 10.

Fairly common. Sandy sea-shores. June—August. Annual.

RADISH. (RAPHANUS, LINN.)—Flowers in short terminal clusters, lengthening in fruit. Sepals 4, the 2 side ones pouched (gibbous) ; petals 4, entire, pale yellow or white, veined with pink or purple ; stamens 6, in pairs, one pair shorter than the other two ; carpels 2, with a slender style. Pod long, thick, and beaked, divided transversely by a thin partition into 2 unequal cells, the shell having no valves, but simply decaying to free the seeds (indehiscent) ; the lower cell very small and without seeds, the upper long and contracted into several 1-seeded cells. Herbs with the lower leaves lobed or divided to the mid-rib (pinnatifid or pinnate), the terminal lobe being the largest (lyrate or imparipinnate).

Wild Radish, White Charlock. (Raphanus Raphanistrum, Linn.)—As just described. The flowers ¾ inch across, pale yellow or white with lilac veins ; the pods 1½–2½

inches long, round and jointed; the stem 1–2 feet high, branched; the lower leaves lobed to the mid-rib, with the terminal lobe the largest (lyrately-pinnatifid), the upper lance-shaped and toothed. Very common. Corn-fields, cultivated ground. June—August. Annual. [*Plate* 11.

Sea Radish. (Raphanus maritimus, Sm.)—A similar species with smaller flowers, which are yellow, rarely white, more distinctly jointed pods, and leaves more deeply cut into more numerous lobes.

Rare. Sea cliffs in the south and west. July—August. Biennial.

WATER-CRESS. (NASTURTIUM, LINN.)—Flowers small, yellow or white, in long or flat clusters (racemes or corymbs). Sepals 4, erect or spreading, not pouched; petals 4, entire, with very short claws; stamens 6, in pairs, one pair shorter than the other two; carpels 2, with the style so short as to appear absent, stigmas clustered. Fruit-pods usually long, narrow, round, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (siliqua); the seeds in two rows in each cell. Herbs with leaves lobed or divided to the mid-rib (pinnatifid or pinnate).

Common Water-cress. (Nasturtium officinale, R.Br.)—As just described. The 4 petals white, and twice as long as the sepals; the fruit-pods short, about ¾ inch long, and slightly curved, with the seeds in two distinct rows in each cell. The stem 1–3 feet high, much branched, smooth, hollow, juicy, and brittle, creeping or sometimes floating in shallow water; the leaf-stalks solid and the leaves divided to the mid-rib into 2 or 3 pairs of roundish or egg-shaped leaflets with one terminal leaflet (imparipinnate). Cultivated for salad. [*Plate* 11.

Common. Shallow streams, ditches. June—August. Perennial.

Creeping Yellow Cress. (Nasturtium sylvestre, R.Br.)—As described in the genus Water-cress (Nasturtium). The petals yellow, twice as long as the sepals; the fruit-pods similar to the Common Water-cress, but narrower, and with the seeds in 2 very irregular rows in both cells; the stem 1–2 feet high, creeping at the base, brittle, and the leaves deeply lobed to the mid-rib (pinnatifid), the lower lobes being narrow.

Not common. Watery places. June—September. Perennial.

Marsh Yellow Cress. (Nasturtium palustre, DC.)—A similar species to the Creeping Yellow Cress (Nasturtium sylvestre), differing in the yellow petals being no longer than the sepals, in the fruit-pod being oval or oblong, with the seeds in 2 distinct rows in both cells, and in the deeply lobed leaves having the terminal lobe the largest (lyrate).

Not common. Watery places. June—October. Perennial.

Great Yellow Cress, Amphibious Yellow Cress. (Nasturtium amphibium, R.Br.)—A somewhat similar species. The flowers bright yellow, ¼ inch across, with the petals twice as long as the sepals, and the style longer than in other species; the fruit-pods very short, ¼-inch long, oval, with 2 distinct rows of seeds in both cells; the stem 2–4 feet high, erect, and the leaves oblong, toothed, serrate, or slightly lobed towards the mid-rib (pinnatifid).

Not common. Watery places, banks of rivers. June—September. Perennial.

WINTER CRESS. (BARBAREA, R.Br.)—Flowers yellow, in short, flat clusters, lengthening in fruit. Sepals 4, the side ones sometimes slightly pouched at the base (gibbous); petals 4, bright yellow, with longish claws; stamens 6, in 3 pairs, one pair shorter than the other two; carpels 2, the seedcase crowned with a short style and an entire or slightly 2-lobed stigma. Pod long, narrow, straight, compressed, 4-angled, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (siliqua), the seeds being in 1 row in each cell. Herbs with angular stems and shining leaves, the

COMMON
WATER-CRESS,
NASTURTIUM OFFICINALE.
COMMON
WINTER-CRESS,
YELLOW ROCKET.
HERB ST. BARBARA,
BABAREA VULGARIS.
WILD
RADISH.
WHITE
CHARLOCK
RAPHANUS
RAPHANISTRUM.

lower ones deeply lobed to the mid-rib with the terminal lobe the largest (lyrate), the upper toothed or deeply lobed to the mid-rib (pinnatifid).

Common Winter Cress, Herb Saint Barbara, Yellow Rocket. (**Barbarea vulgaris, R.Br.**)—As just described. The flowers large, ¼ inch across, yellow; the two side sepals slightly pouched at the base (gibbous); the bright yellow petals with longish claws, twice as long as the sepals; the pods in a long, erect, dense cluster (raceme), narrow, straight, 4-angled, with the seeds in 1 row in both cells; the stem 1–2 feet high, angular, and the leaves shining, the lower ones deeply lobed to the mid-rib, with the terminal lobe the largest (lyrate), the upper ones toothed or deeply lobed to the mid-rib (pinnatifid). [*Plate* 11.

Common. Sides of streams, &c. May—August. Perennial.

Reichenbach's Yellow Rocket. (**Barbarea arcuata, Reichb.**)—A similar species to the Common Winter Cress (Barbarea vulgaris), but with sharp-pointed, spreading pods, in a looser cluster.

Rare. Ireland. May—August. Biennial.

Small-flowered Yellow Rocket. (**Barbarea stricta, Andrz.**)—Another similar species, with smaller flowers and erect pods in a dense, narrow cluster (raceme).

Rare, local. North of England. May—August. Biennial.

***Intermediate Yellow Rocket.** (**Barbarea intermedia, Boreau.**)—Not a native; probably introduced with clover seeds from the Continent. Similar to the Common Winter Cress (Barbarea vulgaris), having the petals twice as long as the sepals, the pods erect, sharp-pointed, in a dense cluster, and the leaves more deeply cut.

Rare, local; introduced into cultivated, chiefly clover, fields. May—August. Biennial.

***American Cress.** (**Barbarea præcox, R.Br.**)—Not a native, a common escape from gardens, where in the early spring it is largely grown for salad. The flowers are larger than in the preceding species, from which it is easily distinguished by the much longer, distant, spreading pods. An escape from cultivation. May—July. Biennial.

ROCK CRESS. (**ARABIS, LINN.**)—Flowers small, white to pale yellow in the British species, in flat or slightly lengthened clusters (corymbs or racemes). Sepals 4, sometimes slightly pouched; petals 4, clawed; stamens 6, in pairs, one pair shorter than the other two; carpels 2, the style being short or absent and the stigma entire or 2-lobed. Fruit-pod long, narrow, flattened, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (siliqua), the seeds being in 1 row in both cells. Herbs with the root leaves growing in a rosette on the ground and the stem leaves without stalks (sessile).

Alpine Rock Cress. (**Arabis alpina, Linn.**)—Very rare. Very similar to the Hairy Rock Cress (Arabis hirsuta) described below, but with larger white flowers, more spreading pods, and toothed stem leaves.

Very rare. Only found in the Isle of Skye. July—August. Perennial.

Common Alpine Rock Cress. (**Arabis petræa, Lam.**)—As just described. The flowers ¼ inch across, white tinged with purple; the fruit-pod spreading, about ½ inch long; the stem 3–6 inches high, branched at the base, and the root leaves oblong, stalked, some nearly entire, but more generally lobed from the midrib (pinnatifid), those of the upper stem stalkless (sessile), narrow, entire.

Rare. Alpine rocks in Wales and Scotland. July—August. Perennial.

Bristol Rock Cress. (**Arabis stricta, Huds.**)—As described in the genus Rock Cress (Arabis). The flowers cream-colour, with narrow, erect petals, the stem 5–10 inches

high, the leaves of the root (radical) oval, wavy or toothed at the edges, hairy, in a rosette, those of the stem without stalks, the upper ones half clasping the stem (semi-amplexicaul).
Very rare, local. Limestone rocks at Bristol and Cheddar. April—May. Perennial.

Fringed Rock Cress. (Arabis ciliata, R.Br.)—Very similar to the Hairy Rock Cress (Arabis hirsuta), but the flowers rather larger, the stem only 4–6 inches high, and the leaves oval and smooth except at the edges, which are fringed with forked hairs.
Very rare, local. Rocks by the sea near Tenby. July—August. Biennial.

Hairy Rock Cress. (Arabis hirsuta, Scop.)—As described in the genus Rock Cress (Arabis). The flowers small and white; the pods slender, 1–2 inches long; the stems about 1 foot high, hairy, leafy; and the leaves egg-shaped (ovate), toothed or entire, the upper ones heart-shaped at the base and slightly clasping the stem (semi-amplexicaul). [*Plate* 12.
Common. Dry banks, walls. June—August. Biennial.

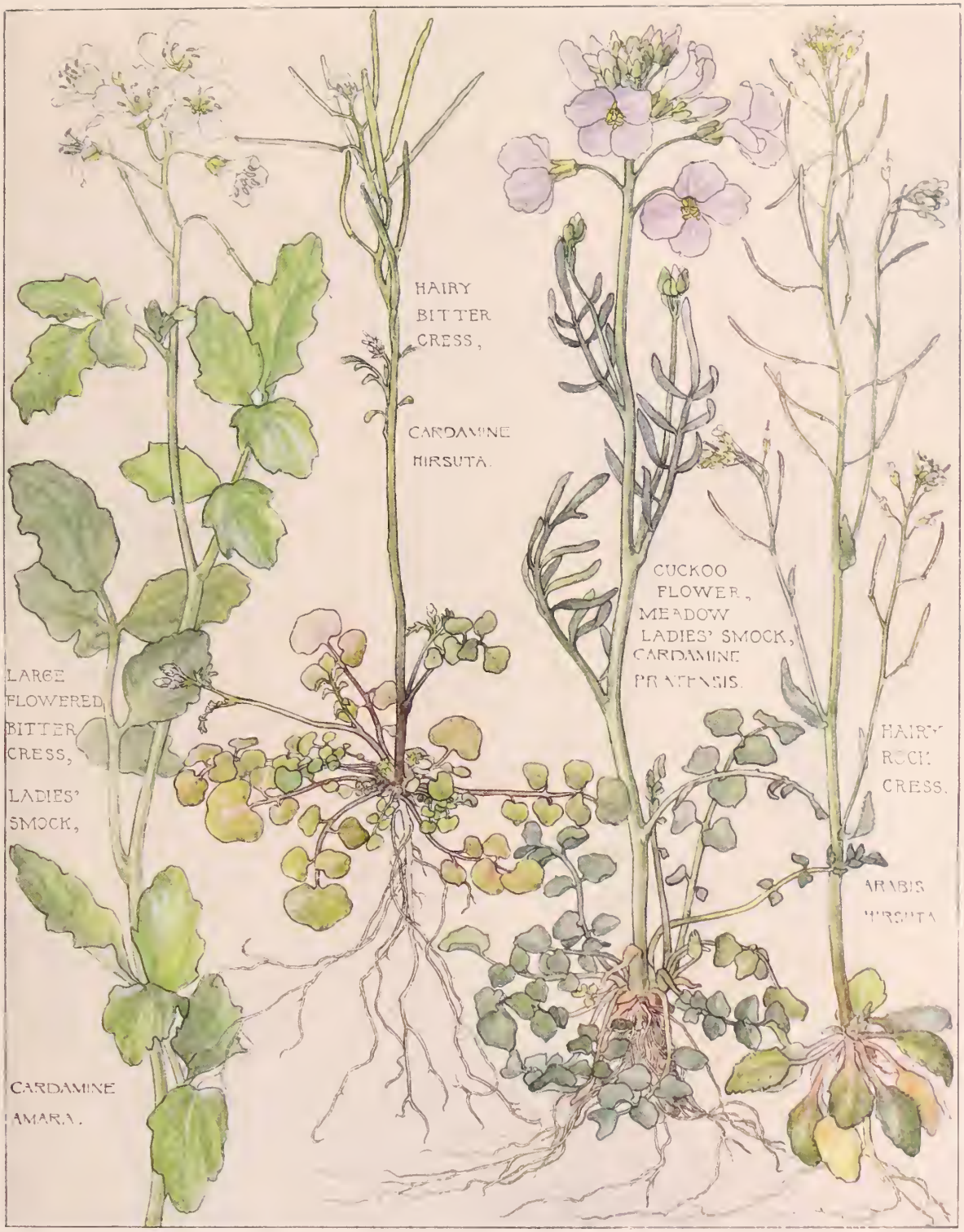
***Tower Rock Cress, Hairy Tower Mustard. (Arabis Turrita, Linn.)**—Not a native. Flowers very pale yellow, large, $\frac{3}{8}$ inch across; the pods narrow, curved downwards. [As described in the genus Rock Cress (Arabis).] The stem 1–2 feet high, nearly simple, stiff and hairy, and the leaves of the stem oblong, lance shaped, clasping the stem (amplexicaul), all toothed.
Very rare. Old walls at Oxford and Cambridge. May—July. Perennial.

Smooth Rock Cress, Smooth Tower Mustard. (Arabis perfoliata, Lam.)—A somewhat similar species, with the flowers $\frac{1}{4}$ inch across, cream- to pale straw-colour, the petals erect; the pods long, narrow, and erect, with 2 rows of seeds in both cells: the stem 1–2 feet high, simple, erect, and the leaves of the root (radical) oblong, lobed or toothed, hairy, soon withering, those of the stem entire, oblong, clasping the stem with pointed lobes.
Rare, local. Banks and waysides. May—June. Biennial or annual.

BITTER CRESS. (CARDAMINE, LINN.)—Flowers lilac or white, in flat clusters, lengthening in fruit. Sepals 4, spreading, not pouched; petals 4, with long claws; stamens 6, in pairs, one pair being shorter than the other two; carpels 2, with usually a short style and an entire or 2-lobed stigma. Fruit-pod long, narrow, flattened, elastic, divided lengthwise into 2 cells by a thin partition (siliqua), to either side of which the seeds are attached, the shell opening suddenly from the base by 2 valves which roll backwards and scatter the seeds to some distance. Herbs with leaves undivided (simple) or divided from the mid-rib into distinct leaflets (pinnate).

Large-flowered Bitter Cress. (Cardamine amara, Linn.)—As just described. Flowers $\frac{1}{2}$ inch across, delicate white, in a loose terminal cluster (raceme), the sepals being purplish and spreading; the stamens with purple anthers; the stem 1–2 feet high, branched, zig-zag, and all the leaves divided to the midrib into 2 or 3 pairs of roundish, toothed, irregular leaflets with one terminal one (imparipinnate). The whole plant is of a fresh shining green, smooth or slightly hairy. [*Plate* 12.
Fairly common. Sides of streams. April—June. Perennial.

Cuckoo Flower, Meadow Ladies' Smock. (Cardamine pratensis, Linn.)—Flowers $\frac{1}{2}$–$\frac{3}{4}$ inch across, delicate lilac or white, in a more or less flat terminal cluster (raceme); the sepals tinged with purple; the petals delicately veined with a darker lilac, and the stamens with yellow anthers. The pod round, 1–1$\frac{1}{2}$ inches long. [As described in the genus Bitter Cress (Cardamine).] The stem 1–2 feet high; the root (radical) leaves in a loose rosette, divided to the mid-rib into 4–12 pairs of roundish, angular leaflets with one terminal one (imparipinnate), and those of the stem similarly divided into narrow (linear) entire leaflets. [*Plate* 12.
Very common. Wet meadows. April—June. Perennial.


HAIRY
BITTER
CRESS,
CARDAMINE
HIRSUTA.
CUCKOO
FLOWER,
MEADOW
LADIES' SMOCK,
CARDAMINE
PRATENSIS.
LARGE
FLOWERED
BITTER
CRESS,
LADIES'
SMOCK,
HAIRY
ROCK
CRESS.
ARABIS
HIRSUTA
CARDAMINE
AMARA.

Hairy Bitter Cress. (Cardamine hirsuta, Linn.)—Flowers very small, white, in a terminal cluster (raceme), with only 4 stamens, and elastic pods soon overtopping the little flowers. [As described in the genus Bitter Cress (Cardamine).] The stem 8 inches to 3 feet high, hairy; the leaves hairy, divided from the mid-rib into from 3–6 pairs of leaflets with one terminal one (imparipinnate); those of the root (radical) in a rosette with roundish leaflets, and those of the upper stem with narrower leaflets. This plant varies in size and texture according to its situation. When growing in dry, hilly situations it has a small, simple, hard stalk, and leaves tinged with red. When growing in damp places it is from 2–3 feet high, profusely branched and leafy, juicy and green. [*Plate* 12.

Common. Hillsides, banks, sides of streams, &c. April—August. Annual.

Wavy Bitter Cress. (Cardamine flexuosa, With.)—A very similar species to the Hairy Bitter Cress (Cardamine hirsuta), differing in having 6 stamens, a longer style, and a more wavy stem.

Common. Shady places, &c. April—September. Biennial.

Narrow-leaved Bitter Cress. (Cardamine impatiens, Linn.)—The flowers small, $\frac{1}{4}$ inch across; the petals white when present, but often absent, and the pods so elastic as to open when ripe with a report and then curl up—hence its name. [As described in the genus Bitter Cress (Cardamine).] The stem 10–18 inches high, erect, leafy, simple or slightly branched, and the leaves divided from the midrib into 4–7 pairs of lance-shaped leaflets with one terminal one (imparipinnate), often toothed or lobed, each leaf having at the base 2 narrow, fringed, stipule-like lobes clasping the main stem.

Rare. Rocky places, chiefly on limestone. May—August. Annual.

Bulbiferous Coral-root, Coral-wort. (Cardamine bulbifera, R.Br.)—Flowers few, large, $\frac{3}{4}$ inch across, lilac. [As described in the genus Bitter Cress (Cardamine).] The pods rarely forming, as the plant is propagated by the bulbs, which grow in the leaf axils and fall to the ground. Stem 1–1$\frac{1}{2}$ feet high, erect, unbranched, leafy; the upper leaves entire, toothed, lance-shaped, with bulbs in their axils, and the lower deeply divided to the mid-rib into 2–3 pairs of lance-shaped, toothed leaflets with one terminal one (imparipinnate).

Rare, local. Shady places in the south-east of England. April—June. Perennial.

***DAME'S VIOLET. (HESPERIS, LINN.)**—Flowers large, in short clusters (racemes). Sepals 4, the 2 side ones pouched at the base (gibbous); petals 4, with long claws; stamens 6, in pairs, one pair being shorter than the other two; carpels 2, the style so short as to appear absent and the stigma divided into 2 erect, parallel lobes. Pod long, narrow, roundish, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by two valves (siliqua). Stout erect herbs with toothed leaves.

***Dame's Violet. (Hesperis matronalis, Linn.)**—The only species found in Britain, but not a native. As just described. The flowers being about $\frac{3}{4}$ inch across, lilac or white; the stem 1$\frac{1}{2}$–3 feet high, branched and leafy, and the leaves egg-shaped, toothed, pointed at the apex, and tapering at the base into a short stalk.

Rare; an escape from gardens. April—July. Biennial.

HEDGE-MUSTARD. (SISYMBRIUM, LINN.)—Flowers rather small, yellow or white, in fairly flat clusters (corymbs), lengthening in fruit. Sepals 4, sometimes with the 2 side ones

pouched; petals 4, entire, with long claws; stamens 6, in pairs, one pair shorter than the other two; carpels 2, the style so short as to appear absent, and the stigma slightly 2-lobed. Pod long, narrow, roundish or compressed, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (siliqua). Herbs with variously shaped leaves.

Thale Cress. (Sisymbrium Thalianum, J. Gay.)—As just described. Flowers minute, $\frac{1}{8}$ inch across, white; the pods narrow, slightly curved upwards; the stem 6–10 inches high, simple or with the upper part branched; the root leaves in a rosette, oblong and toothed, and those of the stem narrower and stalkless (sessile).
Common. Dry banks and walls. April—October. Annual.

Common Hedge-mustard. (Sisymbrium officinale, Scop.)—Flowers minute, $\frac{1}{8}$ inch across, pale yellow [as described in the genus Hedge-mustard (Sisymbrium)], the pod being about $\frac{1}{2}$ inch long, narrow, hairy, tapering from the base to the point, and closely pressed to the main stem; the stem 1–3 feet high, erect, the upper half with spreading branches; the leaves deeply lobed to the midrib (pinnatifid), with the lobes turned downwards towards the base (runcinate), the terminal lobe being the largest. [*Plate* 13.
Common. Waysides and waste places. June—July. Annual.

Flixweed. (Sisymbrium Sophia, Linn.)—Flowers small, $\frac{1}{8}$ inch across, pale yellow, the petals being shorter than the sepals, with long, narrow (linear), erect pods, forming long erect terminal clusters. [As described in the genus Hedge-mustard (Sisymbrium).] Stem 1–3 feet high, erect, and the leaves deeply lobed to the midrib into narrow segments which are again, and sometimes again, divided in a similar fashion (bi- or tri-pinnatifid).
Not common. Waysides, waste places. June—August. Annual.

London Rocket. (Sisymbrium Irio, Linn.)—Flowers small, pale yellow, with the very long, slender, ascending pods overtopping the flowers. [As described in the genus Hedge-mustard (Sisymbrium).] The stem 1–2 feet high, erect, branched, and the leaves deeply lobed or divided into separate leaflets to the midrib (pinnatifid or pinnate). Called London Rocket because it sprang up in abundance on the ruins of London after the Great Fire of 1666.
Very rare. Old walls and waste places. June—July. Annual.

Garlic Mustard, Jack-by-the-Hedge, Sauce-alone. (Sisymbrium Alliaria, Scop.)—Flowers larger, $\frac{1}{4}$ inch across, pure white; pods long, roundish, stiff, smooth. [As described in the genus Hedge-mustard (Sisymbrium).] The stem $1\frac{1}{2}$–3 feet high, and the leaves stalked, broadly heart-shaped (cordate), and coarsely toothed. The whole plant is smooth, shining, of a fresh green in the early spring, and smells of garlic when gathered or bruised. [*Plate* 13.
Very common. Hedgerows, sides of streams, &c. April—June. Biennial.

TREACLE-MUSTARD. (ERYSIMUM, LINN.)—Flowers usually yellow, in flattish clusters (corymbs) lengthening in fruit. Sepals 4, erect, sometimes with the 2 side ones pouched; petals 4, narrow, with long claws; stamens 6, in pairs, one pair shorter than the other two; carpels 2, with a very short or a longer style and a broad or 2-lobed stigma. Pod long, narrow, 4-sided, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (siliqua), the seeds being in 1 row in both cells. Hairy plants, with closely pressed hairs and entire toothed leaves.

Common Treacle-mustard, Worm-seed Mustard. (Erysimum cheiranthoides, Linn.)—The only British species. As just described. The flowers small, $\frac{1}{6}$ inch across, pale yellow, with whitish sepals; erect pods, $\frac{3}{4}$–1 inch long; the stem 6 inches to 3 feet high, erect,

RAPE,
NAVEW.
COLESEED.
BRASSICA
RAPA.
GARLIC
MUSTARD.
SISYMBRIUM
ALLIARIA.
SISYMBRIUM
OFFICINALE.
WILD
MUSTARD.
BRASSICA
SINAPISTRUM.

the upper part branched, and the leaves lance-shaped and slightly toothed. The whole plant covered with star-like hairs.
Rare, local. Cultivated fields. June—August. Biennial.

*Hare's-ear Treacle-mustard. (Erysimum perfoliatum, Crantz.)—Not a native; occurring as an escape from cultivation in the south of England. The flowers are cream-coloured, about ¼ inch across; the stem 8–18 inches high; the leaves of the root stalked and oblong, and those of the stem oval and clasping the stem (amplexicaul); the whole plant hairless (glabrous) and covered with a bluish bloom (glaucous).
Rare. Occurring occasionally in cultivated and waste ground in the south and east of England, but not permanently naturalised. May—July. Annual.

CABBAGE, TURNIP, MUSTARD, RAPE, CHARLOCK, NAVEW. (BRASSICA, LINN.)—Flowers yellow, in clusters, lengthening in fruit. Sepals 4, with the 2 side ones sometimes pouched at the base; petals with long claws; stamens 6, in pairs, one pair being shorter than the other two; carpels 2, the style remaining and terminating the fruit-pod (persistent), the stigma 2-lobed. Pods long, narrow, more or less round, beaked at the tip with the style, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (siliqua), the seeds being in 1 row in both cells. Herbs with various shaped leaves, the different species being parents of some of our most useful vegetables.

Wild Cabbage, Sea Cabbage. (Brassica oleracea, Linn.)—As just described. Flowers large, nearly 1 inch across, pale yellow, in long clusters. Pods 1½ inches or more long, narrow, round, shortly beaked. Stem 1–2 feet high, the main stem being very thick and woody, the branches straggling and fleshy; the leaves smooth, with a bluish bloom (glaucous), those of the root (radical) stalked, broadly oval, wavy (sinuate) or lobed at the base; the upper ones oblong, entire, clasping the stem with their broad bases but not with projecting lobes. This plant is the parent of our garden Cabbages, Cauliflower, Broccoli, Brussels Sprouts, Kale, &c.
Uncommon, local. Abundant on sea-cliffs in Kent and on our south-west coasts. June—September. Perennial or biennial.

*Rape, Navew, Coleseed. (Brassica Napus, Linn.)—An escape from cultivation. Flowers ⅜ inch across, bright yellow, in a short cluster (corymb), lengthening in fruit. [As described in the genus Cabbage, &c. (Brassica)]. Pods 2–3 inches long, with a long beak, slightly constricted between the seeds. Stem 1½–2 feet high, with the root leaves lobed towards the mid-rib, the terminal lobe being the largest (lyrate), and the stem leaves heart-shaped (cordate) at the base and clasping the stem (amplexicaul), the lower ones slightly lobed or wavy, and the upper entire and lance-shaped. The whole plant covered with a bluish bloom (glaucous), and the root tapering (fusiform). This species is much grown for the sake of the colza oil which is pressed from its seeds, which are then used as oil cake for cattle.
Common. An escape in cultivated ground. May—June. Annual.

*Swede. (Brassica Rutabaga, DC.)—Not a native. A similar species to the last, differing in having hairy radical leaves and an enlarged root, which when cultivated is often used as a food for cattle.
An escape in cultivated ground.

Wild Turnip. (Brassica Rapa, Linn.)—Flowers and pods much like those of the Wild Cabbage (Brassica oleracea), but the petals are usually of a deeper yellow; the stem 1—2 feet high, usually simple, erect; the lower leaves more or less lobed from the midrib (pinnatifid), with

the terminal lobe the largest (lyrate), sometimes hairy, and the upper leaves narrowly lance-shaped, entire, clasping the stem with rounded, projecting lobes. The whole plant has a bluish bloom (glaucous). This species is the parent of our cultivated Turnip. [*Plate* 13.

Very common. Cultivated and waste ground. May—August. Annual or biennial.

Isle of Man Cabbage. Dwarf Wallflower-Cabbage. (Brassica monensis, Huds.)—Flowers bright lemon-yellow, veined, rather large, ¾ inch across. Pod about 2 inches long, with a long thick beak which usually contains 1–3 seeds. [As described in the genus Cabbage, &c. (Brassica)]. Stems 6–12 inches high, the leaves all deeply divided to the mid-rib almost into separate leaflets, the lobes of the root (radical) leaves being short and broad, and those of the stem very narrow (linear).

Rare, local. Sandy sea-shores on the west coast. June—August. Biennial.

Jersey Cabbage. (Brassica Cheiranthus, Vill.)—A similar species, but taller and more hairy.

Very rare. On sandy sea-shores in the Channel Isles and Cornwall. June—August. Biennial.

Black Mustard. (Brassica Sinapioides, Roth.)—Flowers ⅓–½ inch across, yellow, with spreading sepals. Pods ½–¾ inch long, erect, pressed to the stalk, 4-sided, the beak short and pointed. [As described in the genus Cabbage, Mustard, &c. (Brassica).] Stem 1–3 feet high, hairy, branched; the lower leaves large, rough, lobed to the midrib, the terminal lobe being the largest (lyrately pinnatifid) and the upper stalked, narrowly lance-shaped, entire, and without hairs. The whole plant is of a dark green. This plant is cultivated for its seeds, which yield our table mustard.

Fairly common. Waste and cultivated ground. June—August. Annual.

Hoary Mustard. (Brassica adpressa, Boiss.)—A very similar species to the Black Mustard (Brassica Sinapioides), but having shorter pods and less deeply lobed leaves.

Rare. Sandy sea-shores in the Channel Isles. July—August. Biennial.

Wild Mustard, Charlock. (Brassica Sinapistrum, Boiss.)—Flowers ½–¾ inch across, bright lemon-yellow. [As described in the genus Cabbage, Mustard, &c. (Brassica).] Pods 1–2 inches long, ascending, constricted, angular, beaked, more than one-third of the length being occupied by the beak, which often contains one seed at the base. Stem 1–2 feet high, with a few stiff hairs, branched; the leaves rough with short hairs, oval or oblong, the lower ones lobed towards the mid-rib, with the terminal lobe the largest (lyrately pinnatifid) and the upper stalked, oval, and toothed. [*Plate* 13.

Very common. Waste and cultivated ground. May—August. Annual.

White Mustard. (Brassica alba, Boiss.)—A similar plant, with the flowers ½ inch across, yellow, the pods spreading, hairy, ¾–1 inch long, more than half being occupied by a stout flattened beak, often curved, and the leaves all stalked and deeply lobed to the midrib (pinnatifid). This is the mustard of cultivation, seedlings being eaten as salad with Common Cress (Lepidium sativum).

Common. Waste ground. June—July. Annual.

ROCKET. (DIPLOTAXIS, DC.)—A very similar genus to the last, and frequently united with it, differing in the pods being flatter and in the seeds being in 2 rows in both cells.

Wall Rocket. (Diplotaxis tenuifolia, DC.)—Flowers ¾ inch across, lemon-yellow, sweet-scented, in a short cluster which lengthens in fruit. Pods 1–1½ inches long, narrow, erect, flattened, tipped by the round style ⅛ inch long. Stems 1–3 feet high, tender, leafy; all the

leaves stalked and deeply lobed towards the midrib into narrow segments (pinnatifid), smooth, with a bluish bloom (glaucous). [*Plate* 14.
Not common. Old walls. June—September. Perennial.

Sand Rocket. (**Diplotaxis muralis, DC.**)—A similar species to the last, but with the flowers and pods smaller, the stem shorter, 6–9 inches high, hairy, and the leaves mostly from the root and less deeply divided, often only toothed and wavy.
Not common. Waste places near the sea, chiefly in the south. August—September. Annual.

AWL-WORT. (**SUBULARIA, LINN.**)—A genus consisting of one species growing completely under water.

Water Awl-wort. (**Subularia aquatica, Linn.**)—Flowers minute, few, white, in small terminal clusters on leafless stalks, 1–3 inches high, rising from the root (scapes), and flowering under water. Sepals 4, spreading; petals 4, without distinct claws; stamens 6, in pairs, one pair shorter than the other two; carpels 2, with the style absent and the stigma 2-lobed. Pods short, oval, slightly flattened, divided lengthwise into two cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (silicula), containing from 2–6 seeds in both cells. Leaves all from the root in tufts, 1–2 inches long, narrow, smooth, tapering from the base to the apex (awl-shaped, subulate). [*Plate* 14.
Uncommon. Gravelly bottoms of lakes in mountainous districts. June—July. Perennial.

CANDYTUFT. (**IBERIS, LINN.**)—Flowers white or purple, in flattish terminal clusters. Sepals 4, erect, not pouched; petals entire, with short claws, unequal, the 2 outer petals being much enlarged; stamens 6, in pairs, one pair being shorter than the other two, carpels 2, with a long style which remains with the fruit (persistent). Pod short, oval, much flattened, winged notched at the apex, with the persistent style between the notches, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (silicula), with 2 seeds, 1 in each cell. Herbs or under-shrubs with narrow leaves entire or lobed to the midrib (pinnatifid).

Bitter Candytuft. (**Iberis amara, Linn.**)—The only British species (as just described). The flowers white, both petals and sepals tinged with pink or purple; the stem 4–9 inches high, erect, branched at the top, and the leaves oblong, stalkless (sessile), toothed or lobed.
Rare, local. Corn-fields, cultivated ground, on chalky soil. July—August. Annual.

TEESDALIA, R.Br.—A genus very similar to the Candytuft (Iberis), with minute flowers, white, in flattish clusters (corymbs) lengthening in fruit, on leafless stalks from the roots (scapes). The 2 outer petals enlarged, and the pods short, roundish, notched, and narrowly winged, 2-celled (silicula), both cells containing 2 seeds. Small annual herbs, with the leaves all from the root (radical) in a rosette, deeply lobed to the mid-rib (pinnatifid).

Naked-stalked Teesdalia. (**Teesdalia nudicaulis, R.Br.**)—The only British species (as just described). A small plant, 2–4 inches high. [*Plate* 14.
Fairly common, local. Gravelly and sandy commons, dry banks. April—June. Annual.

HUTCHINSIA, R.Br.—Flowers small, white, in flat clusters (corymbs), lengthening in fruit. Sepals 4, erect, not pouched; petals 4, equal, entire; stamens 6, in pairs, one pair being shorter than the other two; carpels 2, with almost no style. Pod short, oval, flattened, keeled, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell

opening from base to apex by 2 valves (silicula), with four seeds, 2 in each cell. Small annuals, with the root leaves in a rosette, fading quickly, and numerous stem leaves, all narrow and deeply lobed to the midrib (pinnatifid) into narrow segments.

Rock Hutchinsia. (Hutchinsia petræa, R.Br.)—The only British species, as just described, the stem being 2–5 inches high.

Rare. Limestone rocks, chiefly in the west of England. March—May. Annual.

***WOAD. (ISATIS, LINN.)**—Not a native. Flowers small, numerous, yellow, terminating the stem and branches so as to form a flat branched cluster (compound corymb). Sepals 4, spreading; petals 4, shortly clawed; stamens 6, in pairs, one pair shorter than the other two; carpels 2, style absent. Pod short, broad, flattened, broadly winged, without the usual partition dividing it, and so only 1-celled and 1-seeded, not opening by valves, but decaying to free the seed. Herbs with undivided leaves, the upper ones clasping the stem (amplexicaul) and arrow-shaped at the base (sagittate).

***Dyers' Woad. (Isatis tinctoria.)**—Not a native (as just described). The flowers about $\frac{1}{6}$ inch across, both sepals and petals yellow; the stem 2–4 feet high, branched at the top; the leaves of the root (radical) oblong, toothed and stalked, and the upper ones stalkless, clasping the stem and arrow-shaped at the base. The whole plant is smooth and has a bluish bloom (glaucous). The ancient Britons stained themselves with the juice of this plant. It is still cultivated on account of its colouring properties, which are either blue or a poor black. [*Plate* 14.

Rare, local. Cultivated fields, chalk pits; well established at Tewkesbury. July—August. Biennial.

***ALYSSUM, LINN.**—Not a native genus. Flowers white or yellow, in short clusters, lengthening in fruit. Sepals 4; petals 4, with short claws; stamens 6, in pairs, one pair shorter than the other two; carpels 2, the style being short or long, and remaining with the fruit (persistent). Pod short, roundish or oval, flattened, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (silicula); seeds 1–4 in each cell. Woody herbs or under-shrubs, much branched and covered with simple or star-like hairs; the leaves entire and narrow.

***Small Alyssum. (Alyssum calycinum, Linn.)**—As just described. The flowers small, $\frac{1}{8}$ inch across, pale yellow; the pods nearly round, slightly notched, containing 1 or 2 seeds in each cell; the stems 3–6 inches long, woody, and the leaves stalkless, narrow, and tapering at the base.

Rare. An escape from cultivation. Sides of fields and waste places. June—August. Annual.

***Sweet Alyssum. (Alyssum maritimum, Linn.)**—A similar but larger plant (as described above) with sweetly scented, white flowers, about $\frac{1}{4}$ inch across; the pod oval, not notched, containing only 1 seed in each cell; the woody stem 4–12 inches long, and the leaves narrowly lance-shaped, tapering at the base or slightly stalked. [*Plate* 14.

Rather rare. An escape from cultivation. Walls and waste places near the sea. Flowers all the summer. Annual or perennial.

***Alyssum incanum, Linn.**—This species has been found occasionally in the south of England, but very rarely. It has yellow flowers, and longer pods with more seeds.

WHITLOW-GRASS. (DRABA, LINN.)—Flowers small, white or yellow, growing in short flat clusters (corymbs), lengthening in fruit. Sepals 4, short, not pouched; petals 4, sometimes notched, with short claws; stamens 6, in pairs, one pair shorter than the other two; carpels 2,

SWEET
ALYSSUM
ALYSSUM
MARITIMUM.
TEESDALIA
NUDI-CAULIS
NAKED-
STALKED
TEESDALIA
DYER'S
WOAD,
ISATIS
TINCTORIA.
WATER-
AWL-
WORT.
SUBULARIA
AQUATICA.
WALL
ROCKET,
DIPLOTAXIS
TENUIFOLIA.

with a short or long style and a 2-lobed or entire stigma. Pod short, oblong or oval, flattened, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (silicula). Seeds numerous. Small hairy herbs with small simple leaves, those from the root (radical) spreading into a rosette.

Wall Whitlow-grass or Speedwell-leaved Whitlow-grass. (Draba muralis, Linn.)—As just described. The flowers small and white; the sepals oblong, purplish; the petals entire; the pods broadly oval, flattened; the stem 6–12 inches high, hairy, weak, simple or slightly branched; the leaves covered with star-like hairs, those of the root (radical) broadly egg-shaped, and those of the stem egg-shaped (ovate), clasping the stem (amplexicaul).

Rare. Local. Limestone rocks in the west of England. April—May. Annual.

Twisted Whitlow-grass. (Draba incana, Linn.)—Flowers $\frac{1}{8}$ inch across, white; the petals slightly notched, and the pod oval and twisted. [As described in the genus Whitlow-grass (Draba).] Stem 4–14 inches high, leafy, hairy, branched, and all the leaves oblong or lance-shaped, toothed or lobed, and hairy, none clasping the stem.

Uncommon. Mountainous, rocky places, and sandhills near the sea. June—July. Perennial.

Rock Whitlow-grass. (Draba rupestris, R.Br.)—Flowers few, white, petals slightly notched. Pods oblong, flattened, slightly hairy. [As described in the genus Whitlow-grass (Draba).] Stem 1–2 inches high, simple, hairy, leafless or with one leaf, and the root leaves narrow, oblong and hairy, in tufts.

Very rare. Mountainous, rocky or mossy places. May—June. Perennial.

Yellow Alpine Whitlow-grass. (Draba aizoides, Linn.)—Flowers larger, $\frac{3}{8}$ inch across, yellow, the petals slightly notched, in a small cluster terminating a leafless stalk from the root (scape). Pods narrowly oval, flattened and pointed with the long style. Flower stalks 2–6 inches high, the leaves all from the root forming dense rosettes, narrow (linear), rigid, bright green, edged with stiff white hairs.

Very rare. Rocks and walls near Swansea. March—May. Perennial.

VERNAL WHITLOW-GRASS. (EROPHILA, DC.)—A very similar genus to the last, the flowers being always white and the petals deeply notched, in clusters terminating slender leafless stalks from the root (scapes), the leaves in a rosette.

Common Vernal Whitlow-grass. (Erophila vulgaris, DC.)—As just described. The flowers small and white, with deeply notched petals, in small clusters terminating leafless stalks from the root (scapes) 1–6 inches high; the pods flattened, always twice as long as broad and sometimes longer, and the leaves all from the root (radical) in a rosette, lance-shaped, entire or toothed, and hairy. [*Plate* 15.

Common. Walls and dry banks. April—May. Annual.

Short-podded Whitlow-grass. (Erophila præcox, DC.)—Similar to the Common Vernal Whitlow-grass, but with flattened, roundish pods, slightly longer than broad.

Less common. Walls, dry banks, chiefly in Yorkshire. April—May. Annual.

Inflated Whitlow-grass. (Erophila inflata, Hook. fil.)—Another similar species, with inflated pods.

Very rare. Found on Ben Lawers. June—July. Annual.

SCURVY-GRASS. (COCHLEARIA, LINN.)—Flowers usually white, in flat or lengthened clusters (corymbs or racemes). Sepals 4, short, not pouched; petals 4, entire, with short claws; stamens 6, in pairs, one pair being shorter than the other two; carpels 2, with a short or long style, remaining with the fruit (persistent), and clustered stigmas. Pod short, round or oval

divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (silicula), the seeds being usually in 2 rows in both cells. Smooth herbs with undivided (simple) often fleshy leaves, growing in or near the seashore.

This genus received its name of Scurvy-grass in the days before steamships, in consequence of its frequent use by sailors suffering from scurvy, that disease being caused by the impossibility of obtaining fresh vegetables on a voyage.

Common Scurvy-grass. (Cochlearia officinalis, Linn.)—As just described. The flowers white, $\frac{1}{4}$–$\frac{3}{8}$ inch across; pods round, tapering at the apex into the style. The stems 4–10 inches long, fleshy, brittle, ascending or decumbent; the root leaves on long stalks, roundish, heart-shaped at the base, $\frac{1}{2}$–2 inches across, and those of the stem egg-shaped (ovate) or oblong, the uppermost stalkless (sessile). [*Plate* 15.

Common. Muddy sea-shores and the banks of tidal rivers. May—June. Annual.

Alpine Scurvy-grass. (Cochlearia alpina, H.C.Wats.)—A similar but smaller plant with less round pods, narrowed at both ends.

Rare. Mountains. May—July. Annual.

Danish Scurvy-grass. (Cochlearia danica, Linn.)—Another small and similar plant, with stalked, triangular leaves, and egg-shaped pods.

Fairly common. Muddy or sandy sea-shores. May—August. Annual.

Cochlearia micacea, Marshall, with fleshy leaves, and

Cochlearia grœnlandica, Linn, with large flowers with long-clawed petals, are also occasionally found.

English Scurvy-grass. (Cochlearia anglica, Linn.)—Much larger and more erect than any other English Scurvy-grass. Flowers larger than in the Common Scurvy-grass (Cochlearia officinalis), pods oval; stems 3–12 inches high; leaves oval or oblong, those of the root (radical) on very long stalks; those of the upper stem stalkless (sessile), half clasping the stem (semi-amplexicaul).

Common. Muddy sea-shores. May—August. Annual.

***Horse-radish. (Cochlearia Armoracia, Linn.)**—Not a native. Flowers $\frac{3}{8}$ inch across, white, in numerous clusters together forming a fairly flat cluster (corymb). Pods rarely ripening in England. [As described in the genus Scurvy-grass (Cochlearia).] Stems 2–3 feet high or even taller, erect and stout; the root leaves 8–12 inches long, on long stalks, oblong, scalloped, wavy, and the stem leaves stalkless (sessile) or nearly so, lance-shaped and toothed. The root, long, tapering, stout, white, and possessing very pungent properties.

A common escape from gardens. By the sides of rivers and in waste places. May—June. Perennial.

***GOLD OF PLEASURE. (CAMELINA, CRANTZ.)**—A genus not native to Britain, very similar to the Scurvy-grass (Cochlearia), differing in its yellow flowers and in its seeds.

***Common Gold of Pleasure. (Camelina sativa, Crantz.)**—An escape from cultivation. Flowers $\frac{1}{8}$ inch across, yellow, in clusters; pods oval, slightly compressed, with the seeds in 2 rows in each cell; stem 1$\frac{1}{2}$–2 feet high, slender, the upper part branched; the lower leaves lance-shaped and the upper clasping the stem with winged bases (auricled).

Very rare. An escape found in flax-fields in England and Ireland. May—June. Annual.

SHEPHERD'S PURSE. (BURSA, WEBER.)—Flowers very small, white, in a short, flat cluster (corymb), lengthening in fruit. Sepals 4, erect, not pouched; petals 4, entire; stamens 6, in pairs, one pair shorter than the other two; carpels 2, style short and remaining with the fruit (per-

LESSER
WART-CRESS,
SWINE CRESS,
CORONOPUS
DIDYMUS.
COMMON
VERNAL
WHITLOW-GRASS,
EROPHILA
VULGARIS.
COMMON
SHEPHERD'S PURSE
BURSA
BURSA-PASTORIS.
FIELD
PENNY
CRESS,
MITHRIDATE
MUSTARD,
COMMON
SCURVY-GRASS,
COCHLEARIA
OFFICINALIS.
HAIRY
PEPPERWORT
LEPIDIUM
HIRTUM.
THLASPI
ARVENSE

sistent). Pod short and broad, heart-shaped, with the lobes uppermost and the point at the base (inversely cordate), divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (silicula). Seeds numerous. A small genus, consisting of a few annual herbs, with their leaves entire or divided to the midrib.

Common Shepherd's Purse. (Bursa Bursa-pastoris, Weber.)—The only British species (as just described). Stem 4 inches to 1½ feet high; the root leaves in a rosette, stalked, deeply lobed to the midrib (pinnatifid), decaying early, and the stem leaves stalkless (sessile), oblong, clasping the stem (amplexicaul) with two narrow wings (auricles). [*Plate* 15.
Very common. Everywhere. February—October. Annual.

WART-CRESS. (CORONOPUS, RUPP.)—Flowers minute, white, in short clusters up the stems, opposite the leaves, lengthening in fruit. Sepals 4, spreading, not pouched; petals 4 or 0, entire; stamens 6 or 4 or 2. Pod oval or kidney-shaped (reniform), notched at the apex, slightly flattened, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves (silicula) or simply decaying to free the 2 seeds. Branched, prostrate herbs, with leaves lobed to the midrib (pinnatifid).

Lesser Wart-Cress, Swine-cress. (Coronopus didymus, Sm.)—As just described. The pods notched at the base and apex, and separating into 2 wrinkled lobes; the stems 6 inches to 1 foot in length, creeping, numerous, slender, hairy, and the leaves deeply lobed to the midrib (pinnatifid), and again lobed in similar fashion (bi-pinnatifid). With a powerful smell of cress. [*Plate* 15.
Common near the sea in the south-west of England. June—September. Annual.

Common Wart-cress, or Swine's-cress. (Coronopus Ruellii, All.)—A similar plant with larger pods, scarcely notched, but so wrinkled as to form a sort of crest round the edge; stem less branched; less divided leaves and no hairs.
Common. Waysides, waste ground. June—September. Annual.

PEPPERWORT. (LEPIDIUM, LINN.)—Flowers small, white, in short clusters (corymbs), lengthening in fruit. Sepals 4, short, not pouched; petals 4 or 0, equal, entire; stamens 6, 2 or 4, sometimes absent; carpels 2, style long or absent. Pod oval or round, more or less notched at the apex, flattened, the two sides sometimes projecting (winged), divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves to free the seeds (silicula). Seeds 1—2. Smooth or hairy herbs or undershrubs.

Broad-leaved Pepperwort, Dittander. (Lepidium latifolium, Linn.)—The largest British species (as just described). Flowers about $\frac{1}{10}$ inch across, numerous, white, in numerous short clusters up and terminating the stem, so forming one long cluster; the petals twice as long as the sepals; the stamens 6; the style absent. Pods oval, neither notched nor winged; stem 2–4 feet high, erect and branched; the root-leaves stalked, large, egg-shaped (ovate) and those of the stem broadly lance-shaped, 2–3 inches long, the upper stalkless (sessile), toothed or entire.
Rare. In salt marshes. July—August. Perennial.

Narrow-leaved Pepperwort. (Lepidium ruderale, Linn.)—As just described in the genus Pepperwort (Lepidium). The petals absent; the stamens only 2 in number; the pods small, nearly round, and winged at the top. The stem 6 inches to 1 foot high, branched, with the leaves of the root (radical) and lower stem deeply lobed to the midrib into narrow segments (pinnatifid), the upper ones usually entire, narrow, and straplike.
Rare. Dry places near the sea. May—June. Annual.

***Common Garden Cress. (Lepidium sativum, Linn.)**—Not a native. A similar plant to the narrow-leaved Pepperwort (Lepidium ruderale), with the petals twice as long as the sepals; 6 stamens; and notched winged pods. The common Cress of our gardens; used as a salad with White Mustard (Brassica alba).
Not uncommon. An escape from gardens. Rubbish heaps. June—August. Annual.

Field Pepperwort, Mithridate Pepperwort. (Lepidium campestre, R.Br.)—Flowers small $\frac{1}{12}$–$\frac{1}{6}$ inch across, white; the petals a little longer than the sepals; the 6 stamens with yellow anthers; the pods oval, rough with minute scales, notched at the apex, with a short style not longer than the notch, winged. Stem 10–12 inches high, solitary, erect, hairy, the upper part branched; the leaves of the root (radical) in a rosette, stalked, oblong, tapering to the base (spatulate), entire or toothed; and those of the stem stalkless (sessile), lance-shaped, entire or toothed, clasping the stem at the base with sharp narrow lobes (sagittate or arrow-shaped).
Common. Waysides, cultivated fields. May—August. Biennial.

Hairy Pepperwort. (Lepidium hirtum, Sm.)—A very similar plant, but having stamens with violet anthers, pods without scales, and a style longer than the notches. [*Plate* 15.
Common. Cultivated fields and waste places. May—August. Annual.

***Whitlow Pepperwort, or Hoary Peppercress. (Lepidium Draba, Linn.)**—Not a native. Another similar plant to the Field Pepperwort (Lepidium campestre), with the flowers larger; the pods heart-shaped, crowned with the long persistent style, and the leaves broader.
Not uncommon, but not a native. Fields, waste ground. June—August. Perennial.

PENNY-CRESS. (THLASPI, LINN.)—Flowers small, white, rose, or purple, in short clusters lengthening in fruit. Sepals 4, not pouched; petals 4, entire or slightly notched; stamens 6, in pairs, one pair shorter than the other two; carpels 2, the style short or long. Pod short, oval or round, flattened, notched, the sides expanded into a wing, divided lengthwise into 2 cells by a thin partition, to either side of which the seeds are attached, the shell opening from base to apex by 2 valves to free the seeds (silicula), which are from 2–8 in each cell. Smooth herbs with usually undivided leaves, the upper clasping the stem (amplexicaul).

Field Penny-cress, Mithridate Mustard. (Thlaspi arvense, Linn.)—As just described. The flowers small, white, the petals longer than the sepals; the pods large, roundish, about $\frac{1}{2}$ inch across, including the wing; the stem 1–2 feet high, simple or slightly branched; the leaves of the root oblong, stalked, soon disappearing, and those of the stem oblong, with toothed or entire margins, stalkless (sessile), clasping the stem with 2 sharp lobes. The whole plant smooth (glabrous) with a slight bluish bloom (glaucous). [*Plate* 15.
Rather rare. Cultivated fields. May—October. Annual.

Perfoliate Penny-cress. (Thlaspi perfoliatum, Linn.)—A similar plant with minute flowers; pods heart-shaped, with the point at the base (inversely cordate); the stems shorter and the leaves of the stem heart-shaped at the base, clasping the stem, but not truly united round it.
Very rare. Local. Stony ground, waste places on limestone. April—May. Annual.

Alpine Penny-cress. (Thlaspi alpestre, Linn.)—Another similar plant with small flowers, simple stem, 6–10 inches high, stem-leaves arrow-shaped at the base.
Rare. Mountainous pastures. May—July. Biennial.

This species has 3 very rare varieties, **Thlaspi sylvestre, Jord.**, with pinkish flowers and violet anthers, found in the north; **Thlaspi occitanum, Jord.**, with lilac flowers, found in Yorkshire and Wales; and **Thlaspi virens, Jord.**, with paler flowers and purplish sepals, found at Matlock.

MIGNONETTE FAMILY. (ORDER VII, RESEDACEÆ.)

CALYX of 4-8 SEPALS, not united (free), remaining with the fruit (persistent), inserted below the seedcase (hypogynous)

COROLLA of the same number of PETALS as there are sepals, small, narrow and unequal, some or all deeply lobed, inserted below the the seedcase (hypogynous).

STAMENS indefinite, 8-24, inserted on a broad disk under the seedcase.

PISTIL of 3-4 CARPELS, united into a 1-celled seedcase (ovary), and separating into the same number of styles & stigmas as there are carpels.

FRUIT a 1-celled, many-seeded capsule opening at the top before the seeds are ripe by as many teeth as there are carpels.

FLOWERS small, greenish-yellow or white, with a small bract below each flower, in long, compact, terminal, spike-like clusters (racemes).

LEAVES alternate, with a small stipule at the base.

DISTINGUISHED BY the small insignificant, narrow, unequal, lobed petals, the numerous stamens and the open capsules.

WILD MIGNONETTE, BASE ROCKET,

RESEDA LUTEA.

Parts of the flower of Mignonette magnified

sepals

petals

disk

stamens

pistil

fruit

WILD MIGNONETTE magnified

WELD,

YELLOW ROCKET,
RESEDA LUTEOLA.

THE MIGNONETTE FAMILY

[ORDER VII. RESEDACEÆ]

THE members of this family are to be recognised by their long compact clusters of greenish-yellow or white flowers, which have insignificant lobed petals, numerous stamens, and open capsules.

It is a very small order, the British species being limited to one genus, inhabiting Europe, Northern Africa, and Western Asia. Our sweet garden Mignonette (Reseda odorata) is a native of Egypt.

MIGNONETTE. (RESEDA, LINN.)—Flowers small, greenish-yellow or white, in long terminal spike-like clusters (racemes), having a single bract at the base of each little flower-stalk. Sepals 4–6; petals, the same number, unequal, the lower ones usually entire and very narrow (linear), the upper twice or thrice divided; stamens 10–40; carpels 3 or 4, united into a 1-celled seedcase, and separating into the same number of styles. Fruit a capsule opening at the top before the seeds are ripe by the same number of teeth as carpels; many-seeded. Herbs, usually smooth, with alternate leaves.

Wild Mignonette. (Reseda lutea, Linn.)—Flowers, small, greenish-yellow, with numerous yellow stamens, in long, thick, terminal, spike-like clusters (racemes). Sepals 6, narrow; petals 6, very unequal, 3-cleft; stamens 10–24; carpels 3, styles 3. Capsule oblong, opening at the top by 3 teeth. The stem 1–2 feet high, ascending, hard, stiff, and branched; the leaves variable but always deeply divided, with the upper ones usually 3-cleft, and the lower deeply divided to the midrib (pinnatifid) into many narrow segments, margin wavy. A bushy plant. [*Plate* 16.

Fairly common. Waste places, fields, especially on chalk or limestone soils. June—July. Biennial.

Yellow-weed, Dyer's Rocket, Weld. (Reseda Luteola, Linn.)—A similar plant, with more erect flower clusters, only 4 sepals, 4 petals, rounder capsules, the stem taller, 2–3 feet high, and the leaves entire, narrow, 2–3 inches long, blunt and shining. This plant was formerly used as a dye, but the yellow obtained from it is not very permanent and has been superseded. [*Plate* 16.

Common. Waste places, especially on chalk or limestone. June—August. Annual.

***White Mignonette. (Reseda alba, Linn.)**—Not a native. Very like the Wild Mignonette (Reseda lutea) but with whiter flowers, 5–6 sepals, 5–6 equal 3-cleft petals, and the leaves all deeply lobed to the midrib (pinnatifid) into numerous narrow segments.

Rare. Sandy shores on the south coast of England and Ireland. July—August. Biennial.

THE ROCK ROSE FAMILY

[ORDER VIII. CISTINEÆ]

THIS family is distinguished by the 3 large and 2 small sepals, the 5 petals, and the numerous stamens, all inserted below the united carpels which develop into a capsular fruit (superior).

It is a small order, mostly of shrubs, chiefly confined to the south-west of Europe and the north of Africa, and in the British Isles limited to one genus. It corresponds with the order which contains the beautiful Gum-Cistuses of our gardens, shrubs and trailing plants which thrive in dry sunny places, exposed in the summer to great heat and drought, and in the winter to frost, but in the summer early morning ablaze with gorgeous flowers which only last a few hours.

ROCK-ROSE. (HELIANTHEMUM, HALL.)—Flowers in loose terminal clusters (racemes), yellow or white in the British species. Sepals 5, the 2 outer smaller; petals 5, falling quickly (fugacious); stamens numerous; carpels 3, united into a 1-celled seedcase, 1 style, and 3 stigmas. Fruit a round capsule opening from top to base by 3 valves, many-seeded. Herbaceous plants or shrubs with entire opposite leaves.

Common Rock-Rose. (Helianthemum Chamæcistus, Mill.)—As just described. The flowers about 1 inch across, stalked, yellow, in long one-sided clusters (unilateral racemes), with a small bract at the base of each little flower-stalk; the stem 3–10 inches long, prostrate, woody, much branched (an under-shrub); the leaves entire, opposite, shortly stalked, oval or narrower, white with downy hairs underneath, and with stipules fringed with hairs at the base of each leaf-stalk. [*Plate* 17.

Common on chalky pastures. July—September. Perennial.

There are four other species of Rock-Rose found in England, but they are rare and local.

Spotted Rock-Rose. (Helianthemum guttatum, Mill.)—With smaller flowers, bright yellow, each petal having a dark-red spot at its base, without bracts and with an upright stem.

Very rare. Dry banks, Cork and the Channel Isles. July—August. Annual.

Brewer's Spotted Rock-Rose. (Helianthemum Breweri, Planch.)—Like the ordinary Spotted Rock-Rose, but with each little flower-stalk having a bract at its base.

Very rare. Dry banks in Anglesey. July—August. Annual.

Hoary Rock-Rose. (Helianthemum marifolium, Mill.)—With small yellow flowers with bracts, prostrate stems, leaves white with hairs underneath, and no stipules.

Rare. Chalky or limestone rocks. May—June. Perennial.

White Rock-Rose. (Helianthemum polifolium, Mill.)—With large white flowers with bracts, a shrubby and prostrate stem, and leaves hoary with white hairs on either side.

Very rare. On Babbicombe and Brean Downs. July—September. Perennial.

ROCK-ROSE FAMILY. (ORDER VIII, CISTINEÆ).

CALYX of 3 large equal SEPALS & 2 smaller outer ones, not united (free), remaining with the fruit (persistent), inserted below the seedcase (hypogynous).

COROLLA of 5 PETALS, not united (free), twisted in bud, falling quickly (fugacious), inserted below the seedcase.

STAMENS numerous, inserted below the seedcase.

PISTIL of 3 CARPELS united into a 1-celled seedcase (ovary), a single style and a 3-lobed stigma.

FRUIT a capsule (a dry roundish fruit), 1-celled or partially divided into several cells, opening often to the base by 3, 5 or 10 valves to free the numerous seeds.

FLOWERS in loose terminal clusters (racemes), yellow, white or red, falling very quickly.

LEAVES entire, opposite, with or without stipules.

DISTINGUISHED BY its 3 large and 2 smaller sepals, its 5 petals, its numerous stamens inserted below the seedcase, its round capsules and entire opposite leaves.

COMMON ROCK-ROSE.

HELIANTHEMUM CHAMÆCISTUS.

sepals petal stamens pistil fruit & seed

THE VIOLET FAMILY

[ORDER IX. VIOLARIEÆ]

CALYX OF 5 SEPALS, remaining with the fruit (persistent), inserted below the seedcase (hypogyrous).

COROLLA OF 5 PETALS, unequal, the lower one spurred at the base, inserted below the seedcase (hypogyrous).

STAMENS 5, with short broad filaments carrying the anthers on their inner surface and forming a ring round the seedcase, inserted below the seedcase (hypogyrous).

PISTIL OF 3 CARPELS, united into a 1-chambered seed-case (ovary), a style swollen above and crowned with a cup-shaped stigma.

FRUIT a capsule, a dry roundish fruit, many-seeded, opening from the top to the base by 3 valves.

FLOWERS showy, often solitary, with unequal petals, frequently having 2 little bracts on the flower-stalk.

LEAVES, alternate, simple, with stipules.

DISTINGUISHED BY the 5 sepals, 5 unequal petals, of which one is spurred, and 5 stamens with their short broad filaments, on the inner surface of which are the anthers, and the 3-valved capsule.

A FAMILY distinguished by its spurred petals, and its stamens with their anthers joining in a ring round the top of the seedcase.

It is a beautiful family, with only one European genus—the Viola—including our Violet and Pansy. Viola calcarata from the Alps and Viola cornuta from the Pyrenees, together with many beautiful varieties, are to be found in our gardens. The Violet is much used in the making of perfume and the Pansy possesses emetic properties.

VIOLET, PANSY. (VIOLA, LINN.)—Flowers usually solitary, stalked, blue-purple, white, yellow, or variegated with all these colours, often with 2 small bracts on about the middle of the flower-stalk. Sepals 5, prolonged at the base, remaining with the fruit; petals 5, unequal, spreading, the lower one spurred at the base; stamens 5, with short thick filaments, carrying the anthers on their inner surface, and forming a ring round the 3 carpels, which are united into a 1-celled seedcase (ovary), a style swollen above, and a cup-shaped stigma. Fruit a many-seeded capsule opening from the top with a spring into 3 boat-shaped valves. Herbs or shrubs with their leaves alternate, or all from the root (radical), and with stipules at the base of each leaf-stalk. It is not the showy flowers in the Violets that produce the seeds; they are produced by unnoticeable, short-stalked, almost petalless flowers which fertilise themselves, appearing later on in the summer.

Marsh Violet. (**Viola palustris, Linn.**)—As just described. Flowers about ½ inch across, drooping, solitary, on a leafless stalk from the root (scape) with 2 small bracts about the middle. Sepals 5, blunt; petals 5, delicate lilac, veined with purple, the spur very short and blunt. Capsule oblong and smooth. The stem so short as to appear absent; the leaves on long stalks from the root (radical), smooth, nearly round, kidney-shaped (reniform), and slightly scalloped (crenate), and the stipules lance-shaped and entire. [*Plate* 18.

Common. Bogs. April—July. Perennial.

Sweet Violet. (**Viola odorata, Linn.**)—Flowers ½–⅝ inch across, drooping, solitary, on a leafless hairy stalk from the root (scape), with 2 small bracts about the middle. Sepals 5, blunt; petals 5, deep purple, lilac or white, with a short, blunt, straight spur. Capsule round and downy. The stem so short as to appear absent, sending out long runners (stems which run along the ground, root, and form another plant); the leaves on long stalks from the root (radical), broadly heart-shaped (cordate), rounded at the top, scalloped (crenate) and downy; and the stipules lance-shaped. Sweet-scented. This species of violet is largely cultivated for many reasons—for its beauty for decorative purposes; for its use as a perfume and as a sweetmeat, when the flower is prepared in sugar it retains its scent; and also for its use as a dye. [*Plate* 18.

Common. Banks, woods, etc. March—May. Perennial.

Hairy Violet. (**Viola hirta, Linn.**)—Extremely like the Sweet Violet (Viola odorata), but with scentless flowers, hairy flower-stalks, with the 2 bracts nearer the base, violet or white petals, with a longer hooked spur, no runners, and narrower hairy leaves which are more pointed at the top. [*Plate* 18.

Common. Chalky or limestone pastures. April—June. Perennial.

Pale Wood Violet. (**Viola silvestris, Reich.**)—Flowers small on flowering branches, scentless. Sepals 5, pointed; petals oblong, narrow, deep lilac or purple, with about 5 simple purple veins at the base, the spur blunt, long, flattened, purple. The main stem evident but very short and not flowering, the side branches bearing the flowers, and being from 2 inches to even 1 foot long; the leaves broadly heart-shaped (cordate), pointed at the top, smooth, and the stipules narrow and toothed. [*Plate* 18.

Fairly common. Woods and hedgerows. May—July. Perennial.

Dark Wood Violet. (**Viola Riviniana, Reich.**)—A very similar plant with larger flowers; darker and broader purple petals, with a yellowish-white spur; and broader leaves, heart-shaped.

Very common. Woods, hedgerows, dry banks, etc. April—June. Perennial.

Hill Violet. (**Viola rupestris, Schmidt.**)—Very similar to the Dark Wood Violet (Viola Riviniana), differing in having downy hairs on its young leaves, flower-stalks and capsules, and in the leaves being nearly round.

Very rare. Pastures in Teesdale. May—June. Perennial.

Dog Violet. (**Viola ericetorum, Schrader.**)—Another similar plant to the Wood Violet (Viola silvestris), differing in having flowers on the main stem; in the petals being bluish-purple or white, with the spur blunt, long, and yellow; the leaves narrowly heart-shaped (cordate), and the stipules narrow, entire, fringed with hairs or toothed. [*Plate* 18.

Not common; abundant locally. Heaths, commons, sandy places. April—May. Perennial.

Smith's Dog Violet. (**Viola lactea, Sm.**)—A very similar plant, with pale greyish-lilac petals, pointed egg-shaped (ovate) leaves which are not heart-shaped at the base; and lance-shaped, toothed stipules.

Rare. Turfy bogs. May—June. Perennial.

Parts of the Field Pansy.
Viola arvensis.
MARSH VIOLET.
VIOLA PALUSTRIS.
WOOD VIOLET.
VIOLA SYLVESTRIS.
var. Reichenbachiana.
sepal
FIELD PANSY
petals
VIOLA ARVENSIS.
stamens & pistil
fruit shewing the seeds
DOG VIOLET.
VIOLA CANINA
SWEET VIOLET.
VIOLA ODORATA
HAIRY VIOLET.
VIOLA HIRTA, var. calcarea.
SEA PANSY.
VIOLA CURTISII.

Haller's Dog Violet. (**Viola stagnina, Kit.**)—Another similar species, with pale lilac or white petals, and a short blunt spur; the stem with the main and side stems flowering and lengthening, the root giving out runners (stems which run along the ground, root, and form fresh plants), and with pointed, egg-shaped leaves, slightly heart-shaped at the base; the stipules being narrowly lance-shaped and toothed.

Very rare. Turf bogs. May—June. Perennial.

Pansy, Heart's-ease. (**Viola tricolor, Linn.**)—Flowers large, purple, whitish or yellow, or with a mixture of these three colours. Sepals 5, shorter than the petals, with large projections; petals 5, spreading, unequal. Capsule oval. [As described in the genus Violet, Pansy (Viola).] Seeds produced by the perfect, showy flowers. Stem 4–10 inches high, erect, branched, angular; with the leaves long-stalked, pointed, egg-shaped, and scalloped (crenate); and the stipules leafy, deeply divided to the mid-rib into several lobes, the terminal one being the largest (lyrate). A very variable plant, with many varieties. [*Plate* 18.

Very common. Cultivated ground. May—September. Annual.

Small Field Pansy. (**Viola arvensis, Murr.**)—A very similar plant, differing in having small flowers, $\frac{1}{4}$–$\frac{3}{8}$ inch across, with erect white or yellow petals, the lower one with a yellow spot and 5 purple lines, the petals shorter or no longer than the sepals; the capsule round, and the seeds produced by the showy, perfect flowers.

Very common. Fields, cultivated ground. May—September. Annual.

Sea Pansy. (**Viola Curtisii, Forster.**)—The flowers much larger than in the small Field Pansy (Viola arvensis), the spreading petals longer than the sepals, yellow, purple, blue, or parti-coloured. The capsule 3-sided, produced by the showy, perfect flowers. The stem 3–10 inches high, and branched. The root producing underground runners. [*Plate* 18.

Rare. Sandy shores in the west of England and Wales, and in Ireland. May—September. Perennial.

Mountain Pansy. (**Viola lutea, Huds.**)—Flowers large, with yellow, purple, or parti-coloured petals, longer than the sepals. Capsule 3-sided, the seeds produced by the showy, perfect flowers. [As described in the genus Violet, Pansy (Viola).] Stem 6–12 inches high fairly erect, and angular; the leaves oblong, scalloped (crenate), with long stalks, and stipules divided to the base into narrow lobes which are all about equal. The root producing underground runners.

Not uncommon in hilly and mountainous grassy districts in Wales, western and northern England and western Scotland. May—September. Perennial.

THE MILKWORT FAMILY

[ORDER X. POLYGALEÆ]

THIS family may be distinguished by its irregular flowers, with 5 unequal sepals, the 2 innermost being petal-like, often larger than the petals, and the stamens being in 2 bundles.

In Europe the family is only represented by the Milkwort (Polygala), the other members being chiefly inhabitants of the tropics or the Southern Hemisphere. Many South African species are cultivated in greenhouses.

Several foreign species are reported to have medicinal value. The Snake-root (Polygala Senega), a North American plant, is believed to be an antidote to snake-bites.

MILKWORT. (POLYGALA, LINN.)—Flowers in terminal clusters. Sepals 5, the 2 inner large, petal-like (petaloid), the other 3 small; petals 3–5, unequal, the lowest turned up at the apex and finely toothed; stamens 8, in 2 bundles, united to the petals from the base half way up; carpels 2, united into a 2-celled seed-case, 1 style and 1 stigma. Fruit a flat, 2-celled capsule (a dry roundish fruit), opening where the carpels unite. Herbs or shrubs with entire leaves and no stipules.

Common Milkwort, Gangweed. (Polygala vulgaris, Linn.)—Flowers in graceful terminal clusters of 10–20, hanging on short flower-stalks with a small bract at the base of each little stalk; sepals 5, the 3 outer small, narrow, greenish; the 2 inner twice as long, broad, egg-shaped, longer and broader than the fruit, coloured like the petals, and beautifully veined in a network; petals 3–5, much smaller than the sepals, the 2 side ones narrow, the lowest turned up at the apex and finely toothed, bright blue, white, or pink; stamens 8, in two bundles; capsule flat, 2-celled, each cell containing 1 seed; stems many, 2–10 inches long, with the leaves at the base nearly round, and the upper ones oblong or narrow, all entire, smooth, and alternate.

[*Plate* 19.

Common. Heaths and dry pastures, especially on chalky soil. June—August. Perennial.

Polygala oxyptera, Reichb.—A similar plant but with smaller flowers, the 2 large wing sepals narrower and shorter than the capsule, more zig-zag branches, and narrower leaves.
Rare, local. Sandy places near the sea. June—August. Perennial.

Lesser Common Milkwort. (Polygala serpyllacea, Weihe.)—A similar plant, with the flowers few and small, the 2 side wing-sepals broader than the fruit; the stem very slender, wiry, prostrate, and the leaves nearly opposite and oval. [*Plate* 19.
Commonest form. Heaths, grassy places. June—August. Perennial.

THE MILKWORT FAMILY (ORDER x. POLYGALEÆ)

CALYX of 5 unequal SEPALS, the 2 innermost much larger, wing-shaped, coloured like the petals (petaloid), remaining with the fruit (persistent), inserted below the seedcase (hypogynous).

COROLLA of 3–5 PETALS, the lowest turned up at the tip & toothed, often united to the 2 side ones, the 2 uppermost minute or absent, inserted below the seedcase (hypogynous).

STAMENS 8, in 2 equal bundles, the filaments united half-way, the tube so formed adhering to the petals, the anthers in 2 sets of 4 each, inserted below the seedcase (hypogynous).

COMMON MILKWORT, POLYGALA VULGARIS.

PISTIL of 2 CARPELS united into a 2-celled seedcase (ovary), 1 style and a 2-lobed stigma.

FRUIT a flat, 2-celled capsule (a dry, roundish fruit) opening where the 2 carpels unite, with 2 seeds, one in each cell.

FLOWERS irregular, in clusters (racemes).

LEAVES entire, usually alternate without stipules.

DISTINGUISHED BY its irregular flowers with their two large petal-like sepals, larger than the petals, & their two equal bundles of stamens.

LESSER MILKWORT, POLYGALA SERPYLLACEA.

Chalk Milkwort. (Polygala calcarea, F. Schultz.)—Another similar plant, with large flowers, the 2 side wing-sepals as broad as and longer than the fruit, and with a strong central vein; the stem branched, each branch with a rosette of oval leaves, the stem leaves being narrower.

Rare. Local. Chalky downs in the south-east of England. May—June. Perennial.

***Bitter Milkwort. (Polygala amara, Linn.)**—Not a native. A similar plant to the Common Milkwort (Polygala vulgaris), but with pink flowers and narrow side sepals.

Very rare. Cronkley Fell in Yorkshire. June—August. Perennial.

Small Bitter Milkwort. (Polygala austriaca, Crantz.)—Another form, with large blue flowers and fleshy leaves.

Very rare. Kent. June—August. Perennial.

SEA-HEATH FAMILY

[ORDER XI. FRANKENIACEÆ]

THIS is a very small family, consisting of one genus only, which has not many species. They are shrubby prostrate herbs or undershrubs, and are found on the sea-coasts in most of the temperate and warmer parts of the world, though they are not recorded for North America.

SEA-HEATH. (FRANKENIA, LINN.)—The only genus, as described on plate 20, illustrating the Smooth Sea-Heath.

Smooth Sea-Heath. (Frankenia lævis, Linn.)—The only British species, with bright pink flowers, the number of petals varying on the same plant, the stamens 6, orange-yellow, the style divided into 3 lobes, the stems wiry and reddish, and the small heath-like leaves arranged in a circle round each joint. [*Plate* 20.

Very rare. Salt marshes on the south-east coasts of England. July—August. Perennial.

THE SEA-HEATH FAMILY. (ORDER XI. FRANKENIACEÆ.)

CALYX of 4-6 SEPALS, united at the base into a tube & separating into 4-6 teeth, remaining with the fruit (persistent), inserted below the seedcase.

COROLLA of 4-6 PETALS, the same number as the sepals, not united (free), clawed, inserted below the seedcase (hypogynous).

STAMENS 4-8, usually 6, inserted below the seedcase (hypogynous).

PISTIL of 2-4 CARPELS, united into a 1-celled seedcase (ovary), and 1 style which is divided at the top into as many branches as there are carpels, the stigmas being on the inside of the branches.

FRUIT a small, roundish capsule, 1-celled & many-seeded, opening by as many valves as there are carpels.

FLOWERS rose or flesh-coloured or purple, stalkless, solitary, in the axils of the leaves, forming leafy clusters terminating the stem & branches.

STEMS jointed, woody and prostrate.

LEAVES small & entire, opposite or arranged in a circle round each joint (whorled).

DISTINGUISHED BY the sepals, petals & stamens being inserted below the seed-case, by the prostrate, woody, jointed branches & by the small opposite or whorled leaves.

SMOOTH SEA-HEATH, FRANKENIA LÆVIS.

sepals petal stamens pistil fruit

THE PINK FAMILY

[ORDER XII. CARYOPHYLLEÆ]

SOME of the marked characteristics of the Pink family lie in the leaves and stems. The leaves are entire and opposite, and the stem is jointed and swollen by each pair of leaves. The flowers have the same number of sepals and petals, 5 or 4, and the same or double the number of stamens, and the fruit is a 1-celled, many-seeded capsule, opening at the top by valves.

It is a large family, widely spread, though rare in the tropics. Common in the Northern Hemisphere, and even found in the Arctic regions and high up on the Alps.

The Pinks, Piccotees, Carnations, Sweet Williams, Campions, and Gypsophylla are species commonly cultivated, and are attractive by reason of their beauty and sweet scent.

PINK. (DIANTHUS, LINN.)—Flowers very noticeable, pink or purple, solitary or in loose clusters (cymes), each flower surrounded by 2–5 small bracts inserted directly under, and partially covering, the sepals. Sepals 5, united at the base into a tube and separating into 5 teeth; petals 5, spreading, with a toothed or jagged edge, thinning into a long claw; stamens 10; carpels 2, united into a seedcase and separating into 2 styles on the inner surface of which are the stigmas. Fruit an oblong, 1-celled, many-seeded capsule, opening at the top by 4 teeth. Herbs with opposite, entire, very narrow leaves, with a bluish bloom (glaucous), and stems with swollen joints (nodes).

Deptford Pink. (Dianthus Armeria, Linn.)—Flowers small, $\frac{3}{8}$ inch across, scentless, rose-coloured with white dots and with very long claws, in small, compact terminal clusters, with 2 downy, long pointed bracts, as long as or longer than the sepals, surrounding each flower. [As just described above.] Stems 1–2 feet high, downy, swollen at the joints (nodes); the leaves $1\frac{1}{2}$–2 inches long, opposite, narrow, downy, the upper pointed and the lower blunt.

Rare. Dry banks and fields in the south and east of England. July—August. Annual or biennial.

Maiden Pink. (Dianthus deltoides, Linn.)—Flowers $\frac{3}{4}$ inch across, rose-pink with white spots and a crimson band across the centre, scentless, solitary, or 2–3 together, with 2 bracts half as long as the sepals. [As just described in the genus Pink (Dianthus).] Stems 6 inches to 1 foot high, much branched, swollen at the joints (nodes). Leaves opposite, narrow and downy, blunt, the upper ones becoming more pointed. [*Plate* 21.

Rare. Gravelly pastures, banks, sandy links. June—September. Perennial.

Cheddar Pink. (Dianthus cæsius, Sm.)—A similar species to the last, with the flowers 1 inch across, rose-coloured, sweet-scented, the petals slightly toothed, solitary, surrounded by 4 broad, shortly-pointed bracts which are $\frac{1}{4}$ as long as the sepals; the stems 4–10 inches high; the leaves tufted and crowded at the base, seldom more than 1 inch long, narrow and blunt on the lower and more pointed on the upper stalks, and covered with a bluish bloom.

Very rare. Limestone rocks at Cheddar in Somerset. June—July. Perennial.

*Common Pink. (Dianthus plumarius, Linn.)—Not a native. Another similar species, the flowers 1 inch across, pale pink or white, the petals deeply toothed, sweet-scented, solitary or in a loose cluster (cyme), surrounded by 4 broad, shortly-pointed bracts ¼ as long as the sepals; the capsule longer than the sepals; and the stems 1 foot high, with the leaves opposite, narrow and pointed, grass-like, with rough edges. This is the origin of the various garden pinks.

Very rare. An escape from cultivation naturalised on old walls. June—August. Perennial.

*Clove Pink, Carnation. (Dianthus Caryophyllus, Linn.)—Not a native. A similar species to the Common Pink (Dianthus plumarius). Flowers 1½ inch across, rose-pink, sweet-scented, solitary or in loose clusters (cymes), surrounded by 4 broad, shortly-pointed bracts ¼ as long as the sepals. Capsule shorter than the sepals. Stems 1–2 feet high, woody at the base, thickened at the joints (nodes); the leaves narrow and grass-like, the lower ones from 4–6 inches long, tufted at the base, green with a bluish bloom. This is the origin of the garden Carnations.

Very rare. An escape from cultivation, found on old castles and rocks near. July—August. Perennial.

Proliferous Pink. (Dianthus prolifer, Linn.)—Flowers small, ¼–⅜ inch across, rose-colour, in compact terminal clusters (heads). [As described in the genus Pink (Dianthus).] Each flower is enclosed in 1 or 2 brown, membranous, semi-transparent bracts as long as the calyx, and each cluster of flowers is enclosed in about 6 large, similar bracts. Capsule oval, tearing the calyx-tube as it increases in size. Stems 6 inch to 1 foot high, erect, simple or branched, swollen at the joints (nodes); the leaves short, ½–¾ inch long, narrow and pointed, with rough margins.

Very rare. Gravelly and sandy places. June—October. Annual.

SOAPWORT. (SAPONARIA, LINN.)—Flowers pink, white, lilac or red, in small dense clusters, uniting into a large, showy terminal cluster (panicle or cyme). Sepals 5, united at the base into a tube and separating into 5 teeth; petals 5, free, notched and clawed, with 2 small teeth at the base of each blade; stamens 10; carpels 2, united into a seedcase and separating into 2 styles. Fruit an oblong capsule, 1- or partially 2-celled, many-seeded, opening when ripe at the top by 4 teeth. Herbs with entire, opposite leaves, and stems with swollen joints (nodes).

Common Soapwort. (Saponaria officinalis, Linn.)—As just described. Flowers large, 1 inch across, flesh-colour or nearly white tinged with crimson, in showy, dense, terminal clusters. Stems 1½–3 feet high, stout, erect, juicy, the upper half branched; the leaves oval, pointed, smooth, 2–4 inches long, strongly marked with 3 or 5 ribs, on very short broad stalks. [*Plate* 22.

Not common, probably an escape from cultivation. Banks, waysides, by the sides of streams. August—September. Perennial.

*Saponaria Vaccaria, Linn.—A species with small, pink flowers and a very angular calyx-tube is occasionally found in cornfields in the south of England. It has doubtless been introduced from Europe, where it is a common cornflower weed.

CATCHFLY, CAMPION. (SILENE, LINN.)—Flowers in loose clusters, the central flower opening first (panicles or cymes). Sepals 5, united into a narrow or inflated tube, with 10 veins, and separating into 5 teeth; petals 5, entire or notched, narrowing at the base into a long claw which has two teeth at its summit; stamens 10; carpels 3, united into a 1-celled seedcase and separating into 3 styles Capsule 1-celled with 3 imperfect divisions at the base, many-seeded,

THE PINK FAMILY. (ORDER XII. CARYOPHYLLACÆ.)

CALYX of 5 or 4 SEPALS, free or united at the base into a tube, remaining with the fruit, inserted below the seedcase.

COROLLA of 5 or 4 PETALS, the same number as the sepals, sometimes minute or absent, free, twisted in bud, inserted below the seedcase.

STAMENS 5 or 4, 10 or 8, the same number or twice as many as the petals, inserted below the seedcase (hypogynous).

PISTIL of 2-5 CARPELS, united into a 1-celled or an imperfectly 2- to 5-celled seedcase (ovary), and dividing into 2-5 styles with the stigmatic surface running along their entire length.

FRUIT a 1-celled or imperfectly 2- to 5-celled capsule, many-seeded, opening, to free the seeds when ripe, at the top, by as many or twice as many teeth as there are styles.

FLOWERS usually in loose forked clusters the central flower opening first (dichotomous cymes), or solitary, generally red or white.

STEMS thickened at the joints (nodes).

LEAVES opposite, undivided (simple), and entire.

DISTINGUISHED BY the flowers having the same number, 5 or 4, of sepals and petals and the same or double the number of stamens, by the usually 1-celled, many-seeded capsules, by the entire opposite leaves and by the stems with swollen joints (nodes).

MAIDEN PINK, DIANTHUS DELTOIDES.

opening at the top by 6 teeth. Herbs, often with a sticky fluid on the stalks which are usually hairy; this fluid prevents small insects from crawling up the stem and stealing the honey which is meant to tempt larger flying insects who will bring pollen from other similar flowers and so fertilise the plant. Leaves opposite and entire, stems with swollen joints (nodes).

Bladder Campion or White Bottle. (Silene Cucubalus, Wibel.)—As just described. Flowers $\frac{3}{4}$ inch across, white, drooping, numerous, sweet-scented at night, in loose clusters (cymes); the calyx inflated, almost round, and covered with a network of veins often tinged with purple; the petals deeply notched, usually without teeth, and the capsule round, opening by 6 teeth, enclosed in the calyx. The stems 1–3 feet high, erect, branched near the base, swollen at the joints (nodes), usually without hairs, and with a bluish bloom; the leaves oblong and pointed, the upper ones stalkless. Occasionally a variety (Silene Cucubalus, var. puberula, Syme.) is found which is rather thickly clothed with very short curled hairs. [*Plate* 23.

Common, particularly on chalky and sandy soils. Waysides, fields, and pastures. June—August. Perennial.

Sea Campion. (Silene maritima, With.)—A very similar species, differing in having usually solitary flowers, never more than 3 together, about 1 inch across, with broader, notched petals, which are always toothed at the base of the spreading blade; the stems 3–10 inches high, and the leaves shorter and almost fleshy, growing in tufts and often forming green cushions.

Common on the seashore, on sand, or shingle, or rocks; more rarely found on wet mountain rocks. June—September. Perennial.

***Common Garden Catchfly. (Silene Armeria, Linn.)**—Not a native. Flowers $\frac{5}{8}$ inch across, numerous, rose-colour, in rather compact, flat-topped clusters (corymbose cymes) [as just described in the genus Catchfly, Campion (Silene)]; the calyx-tube with 10 ribs, tinged with red, and the 5 petals each with 2 long, erect teeth; the capsule narrowly oval, as long as the sepals, opening by 6 teeth; the stems 1–2 feet high, erect, the upper part being sticky, swollen at the joints (nodes), and the leaves oval and pointed, opposite, smooth, stalkless.

Very rare; an escape from cultivation. Cornfields, riversides, and waste places. July. Annual.

Striated Corn Catchfly. (Silene conica, Linn.)—Flowers small, $\frac{3}{8}$ inch across, erect, numerous, pale rose-colour, in loose clusters (cymes); the calyx-tube marked with 30 ribs; the petals notched, and with 2 teeth at the top of the claw, 3 styles; and the capsule oval, shorter than the sepals, opening by 6 teeth. [As just described in the genus Catchfly (Silene).] The stems 6–12 inches high, erect, with soft hairs with sticky glands, swollen at the joints (nodes), and the leaves opposite, very narrow, pointed.

Very rare. Commons and sandy fields. June—July. Annual.

English Catchfly. (Silene anglica, Linn.)—Flowers small, $\frac{3}{16}$ inch across, almost stalkless, white, sometimes tinged with pink, solitary, in succession up the stem, with a pair of leaf-like bracts at the base of each flower, forming a spike-like cluster; the calyx-tube covered with long, shaggy, white hairs; the petals notched, and with 2 teeth at the top of the claws; 3 styles; and the capsule egg-shaped, opening by 6 teeth. [As just described in the genus Catchfly (Silene).] The stems 9–18 inches high, branched, the upper part sticky, with long, white hairs, swollen at the joints (nodes), and the leaves small, the upper ones very narrow and pointed, the lower broader.

Not uncommon in the south of England in sandy or gravelly fields. June—September. Annual.

Spotted Catchfly. (Silene quinquevulnera, Linn.)—A similar species, differing in having larger flowers, which have deep crimson markings on each petal, which is entire, and not notched. [*Plate* 22

Very rare. Truly wild in the Channel Isles, but probably an escape from cultivation in the various places in England where it has occurred. June—August. Annual.

Moss Campion. (Silene acaulis, Linn.)—Flowers about ½ inch across, deep pink or white, solitary, on short stalks or nearly stalkless; the calyx-tube with 10 veins; the petals notched, and with 2 teeth at the top of the claw; 3 styles; and the capsule much longer than the sepals, opening by 6 teeth. [As just described in the genus Catchfly, Campion (Silene).] The stems 2–3 inches high, and the leaves very narrow and small, forming dense, moss-like tufts and cushions.

[*Plate* 23.

Rare. Alpine rocks on mountains in Wales and the north of England; abundant in Scotland. July—August. Perennial.

Spanish Catchfly. (Silene Otites, Wibel.)—Flowers very small, ⅛ inch across, numerous, pale yellowish-green, in loose opposite clusters up the main stalk, forming a long, narrow, erect cluster (a panicle); having the calyx-tube bell-shaped and 10-veined; the petals narrow, not notched, and without teeth; 3 styles; the stamens and carpels usually on different plants (dicœcious); and the capsule oval, a little longer than the sepals, opening by 6 teeth. [As just described in the genus Catchfly, Campion (Silene).] Stems about 1 foot high, erect, unbranched and sticky, swollen at the joints (nodes); the leaves narrow and pointed, stalkless, very few on the stem, but forming dense tufts at the base.

Very rare. Dry sandy fields and waysides in the eastern counties. June—August. Perennial.

Nottingham Catchfly. (Silene nutans, Linn.)—Flowers ¾ inch across, numerous, drooping, sweet-scented, white or tinged with pink, 3 or 5 in loose opposite clusters up the main flowering-stalk, forming a rather long, narrow cluster (panicle); the calyx-tube downy and 10-ribbed; the petals narrow, deeply notched, and with 2 triangular teeth at the top of the claw; 3 styles; and the capsule oval, about as long as the sepals, opening by 6 teeth. [As just described in the genus Catchfly, Campion (Silene).] The stems 1–2 feet high, erect, downy, and sticky, swollen at the joints (nodes); and the leaves opposite, the lower ones oblong, pointed and stalked, the upper few, narrow, and stalkless.

Rare. Dry hills, rocks, castle walls, etc., in the Isle of Wight, the cliffs in south Kent, etc. May—July. Perennial.

***Italian Catchfly. (Silene italica, Pers.)**—Not a native. Very similar to the last species, the flowers ¾ inch across, few, white tinged with pale yellow, in a very loose cluster (panicle), with a hairy, sticky calyx-tube; petals deeply notched and without teeth; 3 styles; and with a long stalk to the capsule, which is about as long as the sepals; the stems 9 inches to 2 feet high, softly hairy and sticky; and the leaves opposite, the lower oblong and pointed, the upper narrow and stalkless.

Very rare. Waysides and chalky ground in Norfolk, Suffolk, and Cambridgeshire. July—August. Perennial.

Night-flowering Catchfly. (Silene noctiflora, Linn.)—Flowers large, ¾ inch across, white, tinged with pink, only opening at night when they are fragrant, 2 or 3 in a loose terminal cluster (panicle); the calyx-tube hairy and sticky, with 10 ribs; the petals deeply notched; the styles 3 in number; and the capsule oval, opening by 6 spreading teeth. [As just described in the genus Catchfly (Silene).] The stems 1–2 feet high, stout, branched, hairy and sticky, swollen at the joints (nodes); and the leaves of the lower stem egg-shaped and shortly stalked, those of the upper stem narrow, pointed and stalkless.

Rare. Fields on sandy or gravelly soil in the east of England, Ireland and the south of Scotland. July—August. Annual.

SPOTTED CATCHFLY.
STRIATED CORN CATCHFLY.
SILENE CONICA.
SILENE QUINQUE-VULNERA.
COMMON SOAPWORT.
SAPONARIA OFFICINALIS.
CORN COCKLE.
LYCHNIS GITHAGO.

CAMPION. (LYCHNIS, LINN.)—This genus is, in all its essential characteristics, like the last [Catchfly and Campion (Silene)], and its separation has no natural foundation. Its point of difference consists in its having 5 or very rarely 4 styles, and 5 or 10 teeth to the capsule.

Flowers in loose clusters, the central one opening first (cymes). Sepals 5, uniting into a narrow or inflated tube, and separating into 5 teeth; petals 5, entire or notched, narrowing at the base into a claw which has two teeth at its summit; stamens 10; carpels 5, united into a 1-celled seedcase, and separating into 5 or very rarely 4 styles. Fruit a many-seeded capsule, 1-celled, often with 5 imperfect cells at the base, opening at the top by 5 or 10 teeth. Herbs often having a sticky fluid on the stems and stalks, which are swollen at the joints (nodes), usually hairy, and having opposite, entire leaves.

Evening Campion. (Lychnis alba, Mill.)—As just described. Flowers 1–1¼ inch across, white or pale pink, few, opening fully in the evening when they are sweetly-scented, in loose clusters (cymes); the calyx-tube softly hairy with 10 green ribs, becoming much inflated in fruit; the petals notched, with 2 teeth at the top of the claw; the styles 5; the stamens and carpels usually being on different plants (diœcious); and the round capsule opening at the top by 10 erect teeth. Stems 1–3 feet high, loosely branched, hairy and sticky, swollen at the joints (nodes); leaves egg-shaped, pointed, hairy, the upper ones without, the lower with, stalks. [*Plate* 23.

Common. Hedges, the sides of fields and waste places. June—September. Biennial or perennial.

Red Campion. (Lychnis dioica, Linn.)—A very similar species to the Evening Campion, differing chiefly in having the calyx shorter and broader, with shorter teeth and tinged with red; the petals rose-pink; the capsule much shorter, opening by 10 teeth which roll back; and in the flowers being scentless and open all day. [*Plate* 23.

Common. Hedges and waste places. June—September. Perennial.

Ragged Robin. (Lychnis Flos-cuculi, Linn.)—Flowers 1¼–1½ inch across, rose-pink, in loose terminal clusters, the central flower opening first (cymes); the calyx tube bell-shaped, tinged with red, with 10 red ribs; the petals lobed into 4 narrow segments; the styles 5; and the roundish, 1-celled capsule opening at the top by 5 teeth. [As just described in the genus Campion (Lychnis).] The stems 1½–2½ feet high, reddish and angular, sticky above and hairy below, swollen at the joints (nodes); and the leaves opposite and narrow, stalkless on the upper and shortly stalked on the lower stem. [*Plate* 23.

Very common. Marshes and moist meadows, by the sides of streams. May—July. Perennial.

Red German Catchfly. (Lychnis Viscaria, Linn.)—Flowers about ¾-inch across, red, stalkless or on very short stalks, in opposite clusters up the main flowering stalk, forming an oblong, spike-like cluster (panicle); with the calyx membranous, generally purple, with 10 ribs; the petals slightly notched and with 2 long teeth at the top of the claw; 5 styles; and the capsule roundish, opening by 5 spreading teeth. [As just described in the genus Campion (Lychnis).] Stems 1–2 feet high, erect, slightly branched, sticky above and hairy below, swollen at the joints (nodes); and the leaves lance-shaped, opposite, the lower ones stalked, the upper stalkless.

Very rare. Local; found on limestone and dry rocks in a few places in North Wales and Scotland. June—August. Perennial.

Red Alpine Campion. (Lychnis alpina, Linn.)—Very similar to the last species, with smaller, rose-coloured flowers in a flat terminal cluster (corymb), the calyx much shorter, the petals narrow and deeply notched, the stems 3–6 inches high, not sticky or hairy, and the leaves chiefly in tufts at the base.

Very rare. On the summits of mountains, in Cumberland, Lancashire, and Forfarshire. July—August. Perennial.

Corn-cockle. (Lychnis Githago, Scop.)—Flowers large, 1½–2 inches across, pinkish mauve, solitary, terminating the stem and branches; the calyx having 10 strong ribs and 5 very long teeth, longer than the petals, all covered with long white hairs; the petals not notched and without any teeth; and the capsule oval, opening by 5 short teeth. [As just described in the genus Campion (Lynchnis).] Stems 1–4 feet high, very hairy but not sticky, swollen at the joints (nodes) and the leaves strap-shaped, pointed and long. [*Plate* 22.
Rare. A cornflower weed. June—August. Annual.

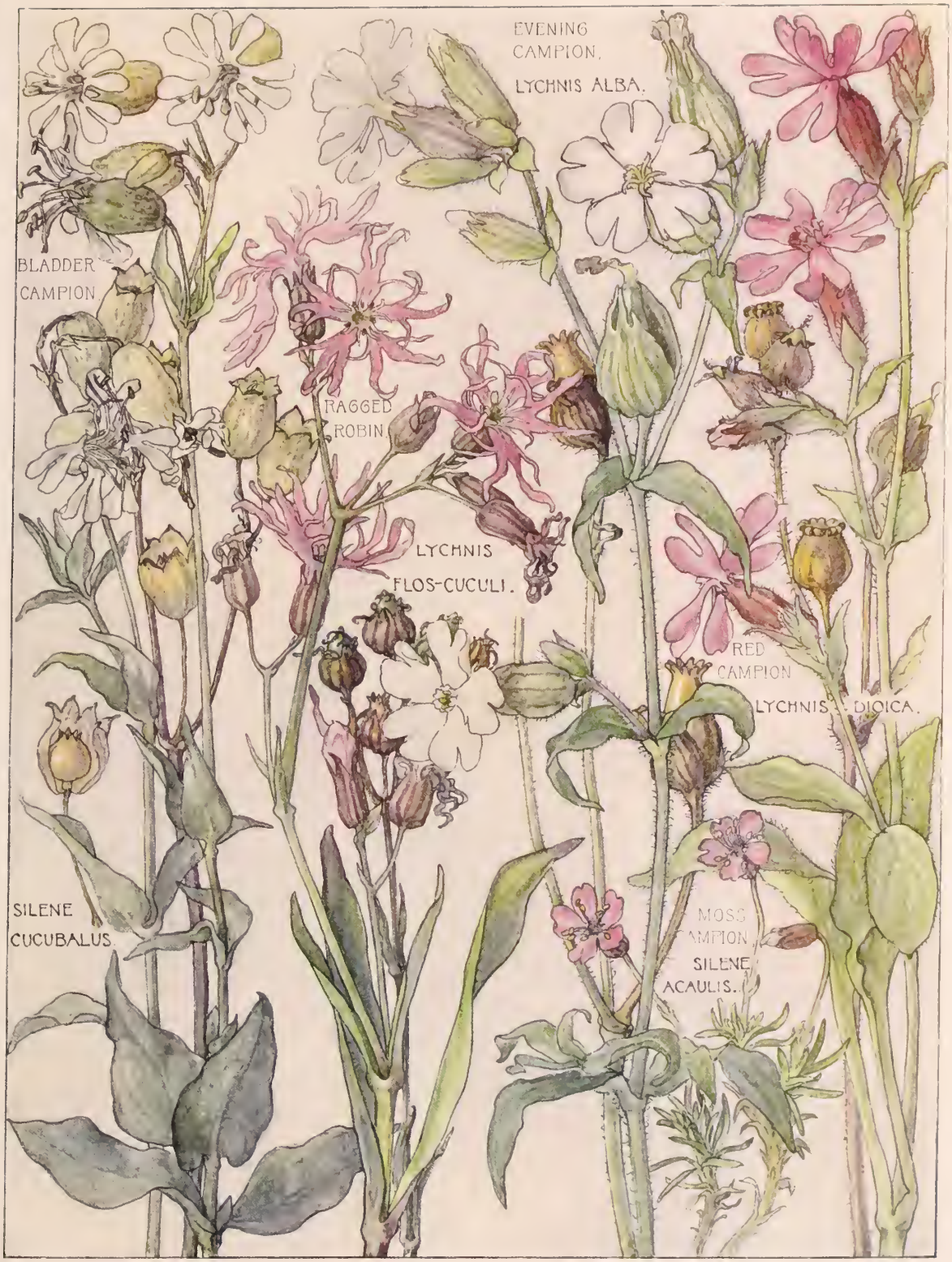
JAGGED CHICKWEED. (HOLOSTEUM, LINN.)—Flowers small, in clusters of shortly-stalked flowers all starting from the same point on the main stalk (simple umbels). Sepals 5, not united (free); petals 5, jagged but not notched; stamens usually 5; carpels 3, uniting into a 1-celled seedcase and separating into 3 styles. Fruit a 1-celled, many-seeded capsule, opening by 6 teeth. Small annual herbs, with opposite, entire leaves, and stems swollen at the joints (nodes), and with the upper part sticky.

Umbelliferous Jagged Chickweed. (Holosteum umbellatum, Linn.)—The only British species (as just described). Flowers ¼ inch across, white, rarely tinged with rose, 3–6 together on long stalks, erect in flower, then drooping and finally erect in fruit; the sepals white with membranous edges; the petals narrow and jagged; and the capsule twice as long as the sepals. Stems 4–8 inches high, sticky at the top and hairy lower down, with swollen joints; and the leaves oval, opposite, pale green with a bluish bloom and fleshy, those of the upper stem stalkless.
Very rare. On old walls in Norfolk and Suffolk. April. Annual.

MOUSE-EAR CHICKWEED. (CERASTIUM, LINN.)—Flowers white, in terminal forked clusters (dichotomous cymes) or rarely solitary. Sepals 5, rarely 4, not united (free); petals 5, rarely 4, the same number as the sepals, usually deeply notched, sometimes minute or absent; stamens twice as many as the sepals, rarely only as many; carpels 5, rarely 4 or 3, united into a 1-celled seedcase and separating into the same number of styles. Fruit a many-seeded, 1-celled capsule, tube-shaped, often curved inwards, opening at the top by twice as many short teeth as there are styles, usually much longer than the sepals. Small herbs, usually downy with small hairs, with stems swollen at the joints (nodes), and opposite, oblong leaves.

Upright Mœnchia. (Cerastium quaternellum, Fenzl.)—Flowers ¼ inch across, white, few, 1–3, on long stalks together, opening only in sunshine. Sepals 4, with a broad white margin, as long as the petals; petals 4, oblong, not notched; stamens 4; styles 4; capsule oval, as long as the sepals, opening at the top by 8 teeth. Stems 2–6 inches high, hairless, with opposite, strap-shaped, pointed leaves, the lower ones broader and stalked. [*Plate* 24.
Not common. Commons and dry pastures. May—June. Annual.

Dark Green Mouse-ear Chickweed. (Cerastium tetrandum, Curtis.)—Flowers ¼ inch across, white, in terminal forked clusters. [As just described in the genus Mouse-ear Chickweed (Cerastium).] The sepals pointed, with narrow, white, membranous margins and gland-tipped hairs, as long as the petals; the petals oblong and notched; the sepals and other parts of the flower usually 4, but sometimes 5. The capsule nearly straight, erect, as long as the sepals. The stems 6–12 inches long, covered with sticky, gland-tipped hairs, much branched; the lower leaves oblong and shortly stalked, the upper broader and stalkless, those under the flower clusters green without any membranous margins. The whole plant is of a dull, dark green, very sticky, covered with short, gland-tipped hairs.
Not common. Dry places near the sea. April—October. Annual.


EVENING
CAMPION.
LYCHNIS ALBA.
BLADDER
CAMPION.
RAGGED
ROBIN.
LYCHNIS
FLOS-CUCULI.
RED
CAMPION
LYCHNIS DIOICA.
SILENE
CUCUBALUS.
MOSS
AMPION.
SILENE
ACAULIS.

Dwarf Mouse-ear Chickweed. (**Cerastium pumilum, Curtis**).—A very similar species to the last, differing in the pointed sepals having broad, white membranous margins; in the capsules being slightly curved upwards, not quite erect, and nearly twice as long as the sepals; in the stems being only 1–3 inches high and only slightly branched; and in the upper stem leaves being narrow, the uppermost with narrow, membranous margins. The whole plant is of a paler and yellower green, often tinged with purple, and not quite so sticky.

Rare. Dry banks and rocks in the south. April—May. Annual.

Little Mouse-ear Chickweed. (**Cerastium semidecandrum, Linn.**)—Another similar species to the Dark Green Mouse-ear Chickweed (Cerastium tetandrum), differing in the pointed sepals having broad, white, membranous margins; in the petals being shorter than the sepals, narrowly oblong, and not distinctly notched; in the stamens being usually 5, sometimes more; in the capsule being very slightly curved upwards, not quite erect, and less than twice as long as the sepals; in the stems being only 1–8 inches high; and in the leaves being broader, the uppermost with broad membranous margins. The whole plant is of a light greyish-green, covered with shorter gland-tipped hairs.

Common. Dry banks, walls, etc. April—May. Annual.

Clustered Mouse-ear Chickweed. (**Cerastium glomeratum, Thuill.**)—Flowers ¼ inch across, white, in compact clusters, with 5 very pointed sepals, with long hairs and a few gland-tipped hairs, and narrow membranous margins; 5 petals, as long as or a little longer than the sepals, oblong, notched, sometimes absent; and usually 10 stamens. The capsule curved upwards, twice as long as the sepals or longer. The stems 6–10 inches high, erect, branched from the root, and hairy; and the leaves broadly oval, hairy, none with membranous margins. The whole plant pale yellowish-green, covered with long white hairs and a few gland-tipped hairs.

Very common. On rich soils, moist fields. April—September. Annual.

Wayside Mouse-ear Chickweed. (**Cerastium triviale, Link.**)—A similar species to the last. The flower stalks lengthening in fruit, in looser forked clusters, the sepals blunt, with broad membranous margins, and the leaves oblong. The whole plant is of a deep dull-green and hairy. [*Plate* 24.

Very common. Waysides, dry places. April—September. Biennial or Perennial.

Alpine Mouse-ear Chickweed. (**Cerastium alpinum, Linn.**)—Flowers ½–1 inch across, white, 1 or 2 together on long stalks. Sepals 5, blunt, with broad membranous margins, hairy, with or without sticky glands; petals 5, twice as long as the sepals, broad, notched; styles 5; and the capsule curved upwards, nearly twice as long as the sepals. Stems 3–6 inches high, branched from the base; and the leaves broadly egg-shaped, the uppermost with narrow membranous margins. The whole plant is sometimes covered with long white hairs, and sometimes with short gland-tipped hairs, rarely without any.

Rare. Fairly abundant in the Highlands of Scotland, more rare in Cumberland and Wales. June—August. Perennial.

Arctic Mouse-ear Chickweed. (**Cerastium arcticum, Lange.**)—A very similar species to the Alpine Mouse-ear Chickweed, but with usually solitary flowers, the capsule nearly straight, the leaves in tufts, very few on the stems, and the plant clothed with stiff yellowish hairs and short gland-tipped ones.

Very rare. Mountains in Scotland and Wales. May—August. Perennial.

Field Mouse-ear Chickweed. (**Cerastium arvense, Linn.**)—Flowers ½–1 inch across, white, numerous, on rather long stalks, in loose clusters, with 5 rather blunt sepals, which have broad membranous margins and short hairs, sometimes tipped with glands; petals 5, twice

as long as the sepals, notched; stamens 10; 5 styles; and a straight capsule, as long as or a little longer than the sepals. The stems 6–10 inches high, much branched from the base, and clothed with hairs sometimes tipped with glands; the leaves narrowly oblong or strap-shaped. [*Plate* 24.
Not common. Dry fields and banks. April—August. Perennial.

Stitchwort Mouse-ear Chickweed. (Cerastium trigynum, Vill.)—Flowers about ½ inch across, white, on rather long slender stalks, 1–3 in a cluster, with 5 narrow blunt sepals, with broad membranous margins; 5 notched petals, twice as long as the sepals; 10 stamens; usually 3 styles; and a straight capsule, ½ longer than the sepals, opening with twice as many teeth as there are styles. Stems 4–8 inches long, prostrate, slender, with a line of minute hairs changing from side to side at each joint (node); the leaves being narrow, small, rather fleshy, and smooth.
Very rare. In moist places on high mountains in Scotland. July—August. Perennial.

STITCHWORT. (STELLARIA, LINN.)—Flowers white, in terminal forked clusters, the central flower opening first (dichotomous cymes). Sepals 5, very pointed, not united (free); petals 5, deeply notched; stamens 10, rarely 5 or fewer; carpels 3, rarely 5, uniting into a 1-celled seedcase and separating into 3, rarely 5 styles. Fruit a many-seeded 1-celled capsule, roundish, straight, opening from the top half way down by twice as many teeth as there are styles, about as long as the sepals. Herbs, usually without hairs, with the leaves often grass-like, and with the stems swollen at the joints (nodes).

Water Stitchwort or Chickweed. (Stellaria aquatica, Scop.)—Flowers about ½ inch across, white, very numerous, stalked, in forked clusters (dichotomous cymes). The sepals 5, lance-shaped, with broad white membranous margins; the petals 5, deeply notched, about ½ longer than the sepals; the stamens 10; the styles 5; and the capsule egg-shaped, drooping, longer than the sepals, opening from the top to the middle by 10 teeth, 1-celled and many-seeded. The stems 1–3 feet long, much-branched and straggling, angular, brittle, and covered with gland-tipped hairs; the leaves stalked and broadly egg-shaped or heart-shaped at the base, the uppermost without stalks.
Not common. By the sides of streams, ditches, and wet places in England as far north as Yorkshire. July—August. Perennial.

Wood Stitchwort. (Stellaria nemorum, Linn.)—A very similar species to the last, differing in having larger flowers, ¾ inch across, on longer, very slender stalks, in looser, much-branched clusters (dichotomous cymes); the sepals with narrow white membranous margins; the petals twice as long as the sepals; the styles only 3; the capsule about as long as the sepals and opening by 6 teeth; the stems 1–2 feet high; and the lower leaves on long stalks, with fewer jointed hairs.
Not common. In woods and shady places, chiefly in northern and western England and southern Scotland. May—August. Perennial.

Common Chickweed. (Stellaria media, Cyr.)—A very variable species divided into several varieties. Flowers small, white, and numerous, solitary on long stalks in the axils of the leaves, forming forked clusters. Sepals 5, hairy, with narrow membranous margins; petals 5, deeply notched, shorter than the sepals, or absent; stamens 3, 5, or 10; styles 3; capsule oval, drooping, a little longer than the sepals, opening by 6 teeth, 1-celled and many-seeded. The stem 6–18 inches long, much branched, weak, and smooth, with the exception of a line of hairs alternating from side to side; the leaves egg-shaped and pointed, without hairs, the upper without stalks and the lower stalked. [*Plate* 24.
Very common. Everywhere. March—November. Annual.

SATIN FLOWER, GREATER STITCH WORT.
FIELD MOUSE-EAR CHICK-WEED.
LESSER STITCH WORT,
COMMON CHICK-WEED.
STELLARIA HOLOSTEA.
STELLARIA GRAMINEA.
WAYSIDE MOUSE-EAR CHICK-WEED,
UP-RIGHT
CERASTIUM ARVENSE
STELLARIA MEDIA.
MOENCHIA CERASTIUM QUATERNELLUM.
CERASTIUM TRIVIALE

Perennial Chickweed. (Stellaria umbrosa, Opitz.)—A very similar species to the Common Chickweed, often considered as a variety only. It differs in having sepals with small raised points and no hairs, slender erect stems and more pointed leaves.
Rare. Shady places in Sussex, and two or three other counties. March—September. Perennial.

Satin-flower or Greater Stitchwort. (Stellaria Holostea, Linn.)—Flowers large, $\frac{1}{2}$–$\frac{3}{4}$ inch across, white, on slender stalks, in loose terminal forked clusters (dichotomous cymes). Sepals 5, pointed, with very narrow membranous margins; petals 5, broad, deeply notched, much longer than the sepals; stamens 10; styles 3; capsule inflated, round, as long as the sepals, opening at the top by 6 teeth, 1-celled and many-seeded. The stems 1–2 feet high, 4-angled, erect, brittle and smooth, snapping easily at the swollen joints, and the leaves lance-shaped, all stalkless, grass-like, often 2 inches long. [*Plate* 24.
Very common. Hedges and thickets. April—June. Perennial.

Glaucous Marsh Stitchwort. (Stellaria palustris, Retz.)—Flowers $\frac{1}{2}$–$\frac{3}{4}$ inch across, white, few in loose terminal forked clusters (dichotomous cymes). Sepals 5, pointed, with broad membranous margins, indistinctly 3-veined; petals 5, deeply notched, much longer than the sepals; stamens 10; styles 3. Capsule oval, as long as the sepals, opening at the top by 6 teeth, 1-celled and many-seeded. The stems 1–2 feet high, slender, 4-angled, branched, very brittle; and the leaves narrow and tapering, all stalkless, the uppermost membranous with a green stripe in the middle.
Not common. Marshy places. May–August. Perennial.

Lesser Stitchwort. (Stellaria graminea, Linn.)—Flowers small, $\frac{1}{4}$–$\frac{1}{2}$ inch across, numerous, white, in loose forked clusters (dichotomous cymes). Sepals 5, pointed, with 3 strong veins; petals 5, deeply notched, scarcely longer than the sepals; stamens 10; styles 3; capsule oval, a little longer than the sepals, opening at the top by 6 teeth, 1-celled and many-seeded. The stems 1–3 feet high, 4-angled, smooth; and the leaves very narrow, pointed, stalkless and smooth, the uppermost reduced to membranous bracts with a green stripe in the middle. [*Plate* 24.
Very common. Meadows, pastures and hedges. May–August. Perennial.

Bog Stitchwort. (Stellaria uliginosa, Murr.)—Flowers $\frac{1}{4}$ inch across, white, few, in loose forked clusters (dichotomous cymes). Sepals 5, with 3 veins, united at the base into a tube and separating into 5 pointed teeth; petals 5, deeply notched, shorter than the sepals; stamens 10; styles 3; capsule oval, a little longer than the sepals, opening at the top by 6 teeth, 1-celled and many-seeded. The stems 6–18 inches long, branched from the base, smooth, brittle and weak; with oblong or lance-shaped leaves, smooth, broader than the Lesser Stitchwort and narrower than the Common Chickweed.
Very common in ditches and marshes. May—June. Perennial.

SANDWORT. (ARENARIA, LINN.)—Flowers small, white, in forked clusters, the central one opening first (dichotomous cymes). Sepals 5, not united (free); petals 5, not notched (entire), rarely absent; stamens 10, rarely fewer; carpels 3, rarely 4, united into a 1-celled seedcase and separating into 3, rarely 4 styles. Fruit an oval or round capsule, opening at the top by as many or twice as many teeth as there are styles, 1-celled and usually many-seeded. Small herbs with the opposite leaves often growing in tufts and forming a cushion, and with the stems swollen at the joints (nodes).

Vernal Sandwort. (Arenaria verna, Linn.)—Flowers $\frac{1}{3}$ inch across, pure white, in loose forked clusters (dichotomous cymes). Sepals 5, pointed, 3-veined; petals 5, entire, longer

than the sepals; stamens 10; styles 3; capsule oval, slightly longer than the sepals, opening by 3 teeth, 1-celled and many-seeded. Flowering stems 1–5 inches high, erect, with very few leaves; the leaves ¼ inch long, narrow and pointed, strongly 3-veined, growing in tufts and forming a cushion. [*Plate* 25.

Rare. In mountain pastures and rocky places in Cornwall and northern Britain, Wales and Ireland. May—September. Perennial.

Alpine Sandwort. (Arenaria sulcata, Schlecht.)—A very similar species to the Vernal Sandwort (Arenaria verna), differing in the flowers being smaller, usually solitary, the petals shorter than the sepals, the styles and capsule teeth usually 4 and rarely 3 or 5; the whole plant of a pale yellowish-green colour, more straggling in growth, and the leaves blunt and not forming a cushion.

Very rare. On the summits of a few Scotch mountains. July—August. Perennial.

Bog Sandwort. (Arenaria uliginosa, Schleich.)—Again very similar to the Vernal Sandwort (Arenaria verna), differing in the petals being only as long as the sepals, and the leaves threadlike, not 3-veined, and, though growing in tufts, not forming cushions.

Very rare. Boggy places by a stream in Teesdale. June—July. Perennial.

Fine-leaved Sandwort. (Arenaria tenuifolia, Linn.)—Flowers small, ¼ inch across, numerous, white, in loose forked clusters (dichotomous cymes). Sepals 5, pointed, 3-veined; petals 5, entire, shorter than the sepals; stamens 5, 8 or 10; styles 3; capsule the same length as or a little longer than the sepals, opening at the top by 3 teeth, 1-celled and many-seeded. The stems 2–8 inches high, very slender, branched, smooth or downy, or with glands above; and the leaves narrow and pointed, 3–5-veined, crowded on the lower, and very few on the upper part of the stem.

Rare. Old walls and dry places, chiefly in the eastern counties. May—August. Annual.

Three-nerved Sandwort. (Arenaria trinervia, Linn.)—Flowers ¼ inch across, white, solitary on long stalks in the axils of the leaves, forming forked clusters (dichotomous cymes). Sepals 5, pointed, 3-veined, the central vein hairy; petals 5, entire, shorter than the sepals; stamens 10; styles 3; capsule oval, shorter than the sepals, opening at the top by 6 teeth 1-celled and many-seeded. The stems 3–18 inches long, branching at the base, weak and downy; and the leaves egg-shaped and pointed, 3-veined, thin, and of a light green, the lower ones stalked, the upper stalkless. In general appearance like the Common Chickweed in growth, but at once distinguished by its undivided petals.

Common. Damp woods and shady places. May—June. Annual.

Thyme-leaved Sandwort. (Arenaria serpyllifolia, Linn.)—Flowers ⅛–¼ inch across, numerous, white, in forked clusters (dichotomous cymes). Sepals 5, pointed, with 3 hairy veins; petals 5, entire, shorter than the sepals; stamens 10; styles 3; capsule egg-shaped, as long as or slightly longer than the sepals, opening at the top by 6 teeth. The stems 2–12 inches long, much branched, spreading, slender but strong; and the leaves very small, egg-shaped and pointed, stalkless, 1–3 veined. [*Plate* 25.

Common. On walls and dry places. June—August. Annual.

Fringed Sandwort. (Arenaria ciliata, Linn.)—Flowers large, nearly ½ inch across, white, few, nearly solitary, the petals much longer than the sepals, and the egg-shaped downy leaves fringed with hairs.

Very rare. Limestone mountains in Co. Sligo. June—July. Perennial.

Norwegian Sandwort. (Arenaria norvegica, Gunn.)—Differing from the last mainly in being smooth instead of downy, and the leaves being fleshy and not fringed with hairs.

Very rare. Shetland and Orkney Isles. July—August. Perennial.

VERNAL
SANDWORT,
ARENARIA
VERNA.
CORN
SPURREY,
SPERGULA ARVENSIS
THYME-LEAVED
SANDWORT,
ARENARIA
SERPYLLIFOLIA,
v. leptoclados,
Gus.
ANNUAL
PEARLWORT,
SAGINA APETALA.
FIELD
SANDWORT-
SPURREY,
BUDA RUBRA.
KNOTTED
SPURREY,
SAGINA
NODOSA.

Gothland Sandwort. (**Arenaria gothica, Fr.**)—Another similar species to the Fringed Sandwort (Arenaria ciliata), differing in the leaves being more tufted and downy, and fringed with curved hairs.

Very rare. Limestone rocks in west Yorkshire. June—September. Annual.

Sea Purslane. (**Arenaria peploides, Linn.**)—Flowers ¼ inch across, greenish-white, solitary, on short stalks in the axils of the leaves, some of the flowers having no stamens and some no carpels, others having both (sub-dicœcious). Sepals 5, blunt, with membranous margins; petals 5, entire, not longer than the sepals; stamens 10 or 0; styles 3–5 or 0; capsule large, round, fleshy, much longer than the sepals, opening by the same number of teeth as there are styles, 1-celled with 1 or 2 seeds. The stems 4–8 inches high, fleshy, slightly branched, very leafy; and the leaves egg-shaped and pointed, fleshy, very numerous and crowded. The whole plant deep shining green and quite smooth, forming tangled masses on the seashore.

Common. On sandy or shingly seashores. May—September. Perennial.

Mossy Cyphel. (**Arenaria sedoides, Froel.**)—Flowers about ¼ inch across, greenish, solitary, generally without petals, and without either stamens or carpels (dicœcious). Sepals 5, blunt, 3-veined, with narrow membranous margins; petals 0, or minute and thread-like; stamens 10 or 0; styles 3 or 0; capsule oval, ½ longer than the sepals, opening from the top to the base by 3 teeth, 1-celled, containing few seeds. The stems 1–2 inches long, densely covered with very narrow, rather fleshy leaves fringed with hairs, and forming a compact cushion often 1 foot across. The whole plant is of a dull yellowish-green colour.

Very rare. On broken rocky ground on the tops of Scotch mountains. June—August. Perennial.

PEARL-WORT. (**SAGINA, LINN.**)—Flowers small, white, on long stalks, in terminal clusters (cymes). Sepals 4 or 5, not united (free); petals 4 or 5, the same number as the sepals, entire or slightly notched, sometimes minute or absent; stamens 4 when there are only 4 sepals, 5 or 10 when there are 5 sepals; carpels 4 or 5, the same number as the sepals, united into a 1-celled seedcase and separating into 4 or 5 styles. Fruit a capsule opening from top to base by as many teeth as there are styles, 1-celled and many-seeded. Small herbs with short, hair-like, opposite leaves and stems swollen at the joints (nodes).

Procumbent Pearl-wort. (**Sagina procumbens, Linn.**)—Flowers ⅕ inch across, few, in loose clusters (cymes). Sepals 4, rarely 5, blunt, spreading in fruit in the form of a cross; petals 4, rarely 5, shorter than the sepals, or 0; stamens and styles 4, rarely 5; capsule oval, opening from top to base by 4, rarely 5, teeth, a little longer than the sepals; the stems 1–3 inches long, without hairs, prostrate, much branched, spreading from a central rosette; and the leaves narrow, opposite, abruptly pointed and united at the base, growing in tufts. A tiresome weed in paths and yards.

Very common. In waste and cultivated ground, especially on garden paths and walls. May—September. Perennial.

Seaside Pearl-wort. (**Sagina maritima, Don.**)—A very similar plant to the Procumbent Pearl-wort (Sagina procumbens), with 4 sepals, petals, stamens, styles and capsule teeth, the petals sometimes absent, the sepals only slightly spreading in fruit and often tinged with purple, and the stems and leaves rather fleshy, dark green often tinged with red.

Common on seashores and by tidal rivers. May—September. Annual.

Annual Pearl-wort. (**Sagina apetala, Linn.**)—Another similar plant to the Procumbent Pearl-wort (Sagina procumbens), with 4 sepals, stamens, styles and capsule teeth, no petals, slightly hairy stems, and narrower leaves tapering to a point. [*Plate* 25.
Very common. Garden walks, walls and dry places. May—September. Annual.

Ciliate Pearl-wort. (**Sagina ciliata, Fries.**)—Another similar plant to the Procumbent Pearl-wort (Sagina procumbens), with 4 sepals, petals, stamens, styles and capsule teeth, the petals sometimes absent, the sepals abruptly pointed and pressed close to the fruit, and the leaves fringed with hairs. The whole plant almost without hairs and of a pale yellowish-green.
Common. Heaths and dry places, walls and garden walks. May—July. Annual.

Braemar Pearl-wort. (**Sagina Boydii, F. B. White.**)—Another similar plant to the Procumbent Pearl-wort (Sagina procumbens). Differing in having the petals always absent, the capsules round with erect sepals, and the leaves densely tufted, forming a cushion.
Very rare. In dry places at Braemar. May—July. Perennial.

Alpine Pearl-wort. (**Sagina Linnæi, Presl.**)—A very similar species to the Procumbent Pearl-wort (Sagina procumbens), differing in having larger flowers, always with 5 sepals, 5 petals almost as long as the sepals, 10 stamens, 5 styles which are erect in fruit, the sepals pressed close to the capsule, which opens by 5 tapering teeth, and the narrow leaves abruptly pointed.
Rare. Rocks and stony places on Highland mountains. June—August. Perennial.

Snow Pearl-wort. (**Sagina nivalis, Fries.**)—A similar species to the Alpine Pearl-wort (Sagina Linnæi). Differing in having smaller petals, capsules longer than the sepals, shorter stems, and the leaves, which are more tapering, growing in tufts.
Very rare. Rocks on Highland mountains. June—August. Perennial.

Awl-shaped Pearl-wort. (**Sagina subulata, Presl.**)—Another similar species to the Alpine Pearl-wort (Sagina Linnæi), differing in having the flowers usually solitary on long stalks, the sepals and capsules with a few gland-tipped hairs, the flowering stems 2–5 inches high, and the leaves tapering to a point and in tufts.
Not uncommon. On dry, sandy places and heaths. June—August. Perennial.

Knotted Spurrey. (**Sagina nodosa, Fenzl.**)—Flowers large, ¼ inch across, white, 1–3 in loose terminal clusters (cymes). Sepals 5, blunt; petals 5, about twice as long as the sepals; stamens 10; styles 5; capsule oval, a little longer than the sepals, opening from top to base by 5 teeth. The stems 3–4 inches high, numerous, smooth or with gland-tipped hairs; and the leaves narrow, opposite, united at the base, abruptly pointed, with little clusters of minute leaves in the axils. [*Plate* 25.
Not uncommon. In wet, sandy places. July—August. Perennial.

SPURREY. (**SPERGULA, LINN.**)—Flowers white, in terminal forked clusters (dichotomous cymes). Sepals 5; petals 5, entire; stamens 10, rarely 5 or 4; carpels 5, united into a 1-celled seedcase and separating into 5 styles. Fruit an oval, many-seeded capsule, opening from top to base by 5 teeth with such force as to scatter the seeds abroad. Herbs with abruptly bent stems, much swollen joints, and numerous, narrow, thread-like leaves arranged in opposite clusters, forming a circle round each joint (whorls), and with small membranous stipules between the leaves.

Corn Spurrey. (**Spergula arvensis, Linn.**)—The only British species (as just described). The flowers ¼ inch across, numerous, on slender stalks which bend down in fruit; the stems 6–18 inches high, much branched from the base, with gland-tipped hairs, and many knee-like bends; and the narrow leaves fleshy. [*Plate* 25.
Very common. Cultivated fields, especially on a light soil. June—September. Annual.

SANDWORT-SPURREY. (BUDA, ADANS.)—Flowers small, pink or lilac, in loose, forked terminal clusters (dichotomous cymes). Sepals 5, free; petals 5, entire, rarely 0; stamens 10, sometimes fewer; carpels 3, rarely 5, uniting into a 1-celled seedcase and separating into 3 or rarely 5 styles. Fruit an oval, many-seeded capsule, opening from top to base by as many teeth as there are styles. Herbs with opposite, thread-like, often fleshy leaves, which are separated by membranous stipules, and often have clusters of smaller leaves in their axils, and stems swollen at the joints (nodes).

Field Sandwort-Spurrey. (Buda rubra, Dum.)—As just described. Flowers ¼ inch across, rose-pink, in terminal forked clusters; the sepals, which have gland-tipped hairs and a broad white membranous border, being as long as the petals and the egg-shaped capsule, and the stamens 4–10 in number. Stems 3–8 inches long, branched from the base, prostrate and downy with gland-tipped hairs; the leaves small, ¼–½ inch long, narrow, and thread-like, fleshy, and tapering to a point; and the stipules silvery-white, lance-shaped and torn. The whole plant is of a dull green. [*Plate* 25.

Not uncommon in dry, sandy places. June—September. Annual.

Seaside Sandwort-Spurrey. (Buda marina, Dum.)—A very similar species to the last, differing in having paler pink flowers, the capsule rather longer than the sepals, the stems and leaves thicker and more fleshy, and the stipules united, broader, shorter, and usually entire.

Not uncommon in sandy and muddy places near the sea. June—September. Annual.

Greater Seaside Sandwort-Spurrey. (Buda media, Dum.)—A similar species to the Seaside Sandwort-Spurrey (Buda marina), with larger white or lilac flowers ¼ inch across, the sepals as long as the petals, the stamens always 10, the capsule twice as long as the sepals, and the whole plant larger and stronger, without hairs and with dull, whitish, entire stipules.

Not uncommon in salt marshes and muddy places by the sea. June—September. Perennial.

Rock Seaside Sandwort-Spurrey. (Buda rupestris, Sebel.)—A very similar plant to the last, with rather rosier flowers, the sepals as long as the capsule, the flower-stalks, stems, and sepals covered with gland-tipped hairs, the leaves oftener with clusters of smaller leaves in their axils, and the stipules silvery-white.

Rare. On rocks by the sea. June—September. Perennial.

ALL-SEED. (POLYCARPON, LOEFL.)—Flowers very small and numerous, in dense terminal forked clusters (dichotomous cymes). Sepals 5, free; petals 5, very minute; stamens 3–5; carpels 3, united into a 1-celled seedcase and separating into 3 styles. Fruit an oval, many-seeded capsule opening from top to base by 3 teeth. Small annual herbs with leaves in opposite pairs, sometimes crowded in circles at each joint (whorls), and stems swollen at the joints (nodes).

Four-leaved All-Seed. (Polycarpon tetraphyllum, Linn.) The only British species (as just described). Flowers minute, ⅛ inch across, numerous, in loose, terminal, forked clusters (dichotomous cymes). Stems 3–6 inches long, much branched and smooth. Leaves ½ inch long or less, oval, opposite, 2 pairs together, one at right angles with the other so as to appear 4 together in a circle (whorl).

Very rare. Sandy places in Cornwall, Devon, and Dorset. Very common in the Channel Isles. June—July. Annual.

THE PURSLANE FAMILY

[ORDER XIII. PORTULACEÆ]

THE species of this family resemble the members of the Pink family in many respects; the flowers differ in having only 2 sepals and 1 style, the leaves in being alternate, and the stems in not being swollen at the joints.

The family is fairly widely spread, and is best represented in North and South America, where many beautiful and showy species may be found. In the British Isles it is but poorly represented, the only true native, Water Blinks (Montia fontana), being a very unnoticeable little plant. The Perfoliate Claytonia (Claytonia perfoliata), a native of North America, is found in such profusion in some parts of these isles that it appears quite naturalised, and the Common Purslane (Portulaca oleracea), cultivated as a pot-herb, is also firmly established at Richmond.

***CLAYTONIA. (CLAYTONIA, LINN.)**—Flowers white or rose-colour, in terminal clusters (cymes). Sepals 2, united at the base; petals 5; stamens 5; carpels 3, style 3-cleft at the top; fruit a 1-celled capsule, opening by 3 teeth. Herbs with numerous stalked leaves from the root (radical leaves).

***Perfoliate Claytonia. (Claytonia perfoliata, Donn.)**—The only species naturalised in Britain (as just described). The flowers white and very small, in a terminal cluster, at the base of which are a pair of opposite, stalkless (sessile) leaves, with the lobes united, so that they appear to be one leaf, through the centre of which the stalk passes (perfoliate), the flower stalks being otherwise leafless; from 6—12 inches high. The root leaves are broad, almost kidney-shaped. The whole plant is rather fleshy. [*Plate* 26.

Naturalised in many parts of England, in Surrey, Sussex, Essex, and Dorset. April—May. Annual.

BLINKS. (MONTIA, LINN.)—A genus consisting of the one species—

Water Blinks. (Montia fontana, Linn.)—Flowers minute, white, solitary, or 2, or 3, in little drooping clusters in the axils of the leaves, forming a distinct cluster (raceme). Sepals 2, broad, persistent; petals 5, entirely united, and split down one side, white; stamens 3; carpels 3, the style 3-cleft; fruit a round capsule, hidden in the calyx. Stems from 1–5 inches high, fleshy, becoming longer when the stems are hidden in water; the leaves small, oval or inversely egg-shaped (obovate), smooth. The whole plant rather fleshy, and forming dense pale-green masses. [*Plate* 26.

Common in wet places; though local in several countries. May—August. Annual.

THE PURSLANE FAMILY (ORDER XIII, PORTULACEÆ).

CALYX of 2 SEPALS, rarely 3 5, united at the base, inserted below the seedcase.

COROLLA of 5 PETALS, rarely more, generally united at the base, inserted below the seedcase (hypogynous).

STAMENS 5, or more, equal in number and opposite to the petals, inserted with the petals below the seedcase (hypogynous).

PISTIL of 3 CARPELS, united into a 1-celled seedcase (ovary) and 1 style which is divided at the top into 3 branches, on the inside of which are the stigmas.

FRUIT a dry, roundish capsule, containing several seeds, and opening at the top by as many valves as there are styles, or rarely decaying to free the seeds (indehiscent).

FLOWERS solitary or in terminal clusters (racemes, panicles or cymes).

STEMS more or less fleshy.

LEAVES entire, usually opposite.

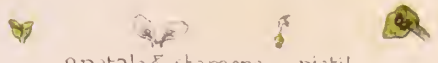
DISTINGUISHED from the Pink Family, which in many respects it resembles, by having only 2 sepals which are always united at the base.

WATER BLINKS

MONTIA FONTANA.

PERFOLIATE CLAYTONIA,

CLAYTONIA PERFOLIATA.



sepals 2 petals & stamens pistil fruit

Parts of Perfoliate Claytonia.

THE ST. JOHN'S-WORT FAMILY

[ORDER XVI. HYPERICINEÆ]

THIS order is easily distinguished from others having 5 or 4 sepals and petals, by the numerous stamens which are collected into 3 or 5 bundles.

It has a wide geographical distribution, but is represented in the British Isles by one genus only, the St. John's-wort (Hypericum).

Many of the species are aromatic and full of resin, some having medicinal properties.

ST. JOHN'S-WORT. (HYPERICUM, LINN.)—Flowers in terminal clusters, the terminal or central flower opening first (cymes). Sepals 5; petals, 5, yellow, often edged with black or red glands; stamens numerous, united at the base into 3 or 5 bundles; carpels 3, rarely 5, with the same number of styles, each tipped with a small pin-head-like stigma; fruit a capsule, 3–5-celled, opening at the top by the same number of teeth, many-seeded, rarely fleshy. Herbs or small shrubs, often with woody stems, and entire, opposite, stalkless leaves, with no stipules, frequently dotted with glands.

Tutsan. (Hypericum Androsæum, Linn.)—Flowers few, $\frac{3}{4}$ inch across, yellow, in small terminal clusters (corymbs). Sepals 5, broad, unequal; petals 5, scarcely longer than the sepals; stamens numerous, in 5 bundles about as long as the petals; styles 3. Capsule round, fleshy and berry-like before it is fully ripe, purplish-black, becoming dry and decaying to free the seeds (indehiscent). Stem 1–3 feet high, erect, woody, with large leaves 1–3 inches long, egg-shaped (ovate), opposite and stalkless (sessile), sprinkled with transparent glands. [*Plate* 27.

Not common, local. Woods and shady lanes, south of England. June—August. Perennial.

There are 3 similar species commonly found in shrubberies, none native:—**Hypericum hircinum, Linn.,** with flowers 1–1½ inches across, the stamens longer than the petals, and small pointed sepals; **Hypericum elatum, Ait.,** very like Tutsan, with larger flowers about 1 inch across, the sepals smaller and more pointed, very long styles, and longer, narrower leaves; and **Hypericum calycinum, Linn.,** with large, solitary, terminal flowers, 3–4 inches across, 5 styles, the stem square, about 1 foot high, and the leaves long, oblong, and leathery.

All flowering from July—September. Perennial.

Common St. John's-wort. (Hypericum perforatum, Linn.)—Flowers numerous, 1–1¼ inches across, in small compact clusters (cymes), terminating the main stem and branches. Sepals 5, pointed, lance-shaped, unequal, erect, united at the base, with a few stalkless glands; petals 5, dotted with black glands, twice as long as the sepals; stamens numerous, united into 3 bundles; styles 3, as long as the capsule, which is oblong, and opens at the top by 3 valves to

free the numerous seeds. Stem 1–1½ feet high, round and smooth, the upper part branched, the leaves small, oblong, opposite, and stalkless (sessile), dotted with transparent glands. [*Plate* 27.
Common. Waste places in woods, hedgerows, thickets, &c. July—September. Perennial.

Imperforate St. John's-wort. (Hypericum dubium, Leers.)—Very similar to the Common St. John's-wort (Hypericum perforatum), but with turned-back, broader, blunt sepals, petals less dotted with black glands, stem 4-sided, leaves larger and broader, with transparent veins but no transparent glands, edged with a few black glands underneath.
Not common. Moist places. July—September. Perennial.

Square-stalked St. John's-wort. (Hypericum quadratum, Stokes.)—Another similar species. The flowers paler and smaller, the sepals erect and pointed; the stem 4-sided, branched, and the leaves half clasping the stem (semi-amplexicaul), with many transparent glands and veins.
Common. Moist places. July—September. Perennial.

Wavy St. John's-wort. (Hypericum undulatum, Schousb.)—Very similar to the Square-stalked St. John's-wort (Hypericum quadratum), but with stalkless black glands on the sepals, narrower petals, and leaves with wavy edges.
Very rare. Bogs in Devon and Cornwall. July—September. Perennial.

Trailing St. John's-wort. (Hypericum humifusum, Linn.)—Flowers few, small, ⅜–½ inch across. Sepals 5, united at the base, unequal, generally edged with black glands; petals 5, edged with black glands; stamens few, in 3 bundles; styles 3, much shorter than the capsule, which is 3-celled, and opens by 3 valves; stems 2–10 inches long, very slender, numerous, trailing, with small, oblong leaves, opposite, stalkless, with or without transparent dots.
Common. Gravelly banks, commons, etc. July—August. Perennial.

Narrow-leaved St. John's-wort. (Hypericum linarifolium, Vahl.)—Flowers ½–¾ inch across. Sepals 5, narrow, fringed with hairs tipped with black glands: petals 5, twice as long as the sepals, with black dots on the margins; stamens few, in 3 bundles; styles 3, nearly as long as the capsule, which is 3-celled and opens by 3 valves; stem 6–12 inches high, slender, erect, with narrowly oblong leaves.
Very rare. Dry, hilly places, Cornwall, Devon, and Channel Isles. July—August. Perennial.

Small Upright St. John's-wort. (Hypericum pulchrum, Linn.)—Flowers ½–⅝ inch across, bright yellow, often tinged with red on the outside. Sepals 5, oval, stalkless, edged with stalkless glands; petals 5, fringed with red glands; stamens in 3 bundles; styles 3, shorter than the capsule, which is 3-celled and opens by 3 valves. Stems 1–2 feet high, numerous, round, erect, smooth; the leaves of the main stem broadly heart-shaped, clasping the stem (amplexicaul), those of the side branches narrower, all marked with transparent dots.
Common. Heaths, commons, dry places. July—August. Perennial.

Hairy St. John's-wort. (Hypericum hirsutum, Linn.)—Flowers ¾ inch across, pale yellow. Sepals narrow, fringed with stalked, dark-coloured glands; stamens in 3 bundles; styles 3, about as long as the 3-celled capsule. Stem 1–3 feet high, erect, round, and hairy; the leaves slightly stalked, oblong, downy, marked with transparent glands; the whole plant hairy.
Fairly common. Woods and bushy places, especially on chalky soil. July—August. Perennial.

Mountain St. John's-wort. (Hypericum montanum, Linn.)—A similar plant, but with the sepals fringed with stalked black glands, the leaves smooth and stalkless, crowded in the middle and very distant in the upper part of the stem, the lower ones clasping the stem, and the whole plant without hairs.
Not common. Woods, copses, especially on chalky soil. July—August. Perennial.

ST: JOHN'S-WORT FAMILY. (ORDER XVI, HYPERICINEÆ.)

CALYX of 5 SEPALS, not united (free), remaining with the fruit, inserted below the seedcase (hypogynous).

COROLLA of 5 PETALS, not united (free), twisted in bud, inserted below the seedcase (hypogynous).

STAMENS numerous, united at the base into 3 or 5 bundles, inserted below the seedcase.

PISTIL of 3-5 CARPELS, united into a 3-5-celled seedcase (ovary), and separating into as many styles as there are carpels, each being tipped with a pin-head-like (capitate) stigma.

FRUIT a capsule, (a dry, roundish fruit), many-seeded, usually opening at the top by 3-5 valves, rarely decaying to free the seeds (indehiscent).

FLOWERS yellow, in small stalked clusters up the stem, forming a rather flat terminal cluster with the central flower opening first (corymbose cyme).

LEAVES opposite & entire, stalkless or with very short stalks, often dotted with glands.

DISTINGUISHED BY the 5 sepals & petals, & numerous stamens which are united at the base into 3 or 5 bundles, & by the 3-5 styles.

TUTSAN.

HYPERICUM ANDROSÆMUM.

COMMON ST: JOHN'S-WORT

HYPERICUM PERFORATUM.

MARSH ST: JOHN'S-WORT, HYPERICUM ELODES.

Marsh St. John's-wort. (Hypericum elodes, Linn.)—Flowers ½ inch across, few, pale yellow. Sepals 5, small, fringed with stalked red glands; petals 5, three times as long as the sepals; stamens in 3 bundles; styles 3, shorter than the 3-celled capsule, which opens by 3 valves. Stems 6–12 inches, creeping, then ascending, covered with woolly, white hairs, and crowded with roundish, heart-shaped leaves, half clasping the stem, of a brilliant soft green, densely clothed with woolly, white hairs. [*Plate* 27.

Rather rare. Spongy bogs, moors. July—August. Perennial.

THE MALLOW FAMILY

[ORDER XVII. MALVACEÆ]

THIS family is distinguished by its 5 sepals and petals, and its numerous stamens with the filaments united into a column surrounding the pistil. All the species native to the British Isles have also an outer calyx of bracts.

This is a very important order, and is widely distributed in the warmer parts of the world, most of the species being natives of the tropics. Among our cultivated flowers are many lovely species of Mallow, the Hibiscus, Abutilon, and Malope, and also the Hollyhock (Althæa), all vying with one another in the marvellous beauty of their flowers, some being of the most gorgeous rosy scarlet, while others are unsurpassed in the delicate veining of the petals.

None of the species possesses any dangerous properties. They all contain large quantities of mucilage, some kinds of which are used for thickening soup and others medicinally for allaying irritation. The tough fibre of the stems of some of the plants is used instead of hemp for making into cordage. But the most valuable species belong to the genus Gossypium, which yields us our cotton: the seeds of various species of this genus are clothed, in extraordinary abundance, with long white hairs, which are removed and spun into thread.

MARSH MALLOW. (ALTHÆA, LINN.)—Flowers solitary or collected into long or short clusters (racemes or corymbs), flesh- or rose-colour, or purple. Outer calyx of 6–9 bracts united at the base. Sepals 5, united at the base; petals 5, twisted in bud; stamens numerous, with the filaments united into a long tube round the pistil; carpels numerous, in a ring, becoming in fruit 1-seeded little nuts, separating when ripe. Hairy herbs with leaves lobed towards the base (palmatifid).

Common Marsh Mallow. (Althæa officinalis, Linn.)—Flowers about 1 inch across, flesh-coloured, in small clusters up the stem forming a long leafy cluster. Outer calyx of 6–9 narrow bracts, united at the base and shorter than the sepals. Sepals 5, densely felted with soft hairs; petals 5; stamens numerous, the united filaments forming a long tube round the pistil. Fruit a number of 1-seeded little nuts, separating when ripe. Stems 2–3 feet high, round, simple or slightly branched, densely felted with soft hairs; leaves shortly stalked, roundish, slightly lobed towards the base into 5 segments (palmatifid), and thickly clothed with downy hairs. [*Plate* 28. Rare, local. Salt marshes near the sea. August—September. Perennial.

Hispid Marsh Mallow. (Althæa hirsuta, Linn.)—A similar plant, with solitary, rose-pink flowers; the sepals a little longer than the petals; the stems only about 1 foot high, very hairy; the root leaves long-stalked, kidney-shaped (reniform), more deeply lobed, and the stem

THE MALLOW FAMILY (ORDER XVII, MALVACEÆ.)
CALYX of 5 SEPALS, more or less united, with in the British examples, 3 or more BRACTS at the base forming an outer calyx (epicalyx or involucre), remaining with the fruit (persistent), & inserted below the seedcase
COROLLA of 5 PETALS, not united, twisted in bud, inserted below the seedcase.
STAMENS numerous, the filaments united into a tube round the pistil, inserted below the seedcase.
PISTIL of numerous CARPELS, in a ring, generally united, with as many styles as carpels.
FRUIT splitting into as many little nuts as there are carpels, each 1-or many-seeded
FLOWERS handsome generally purple, rose-colour or white in loose terminal clusters.
LEAVES alternate, with stipules, lobed towards the base.
DISTINGUISHED BY the outer calyx of bracts, the 5 sepals & petals, & the numerous stamens with their filaments united into a tube round the pistil.
COMMON MALLOW.
SEA TREE-MALLOW.
LAVATERA ARBOREA.
MALVA SYLVESTRIS.
MARSH MALLOW.
ALTHÆA OFFICINALIS.
bracts
fruit
sepals
petal
stamens
pistil

leaves shortly stalked and deeply divided to the base into 3–5 segments; the whole plant very hairy.
Very rare, local. Occurs near Cobham in Kent. June—July. Annual.

TREE MALLOW. (LAVATERA, LINN.)—Flowers growing in small clusters up the stem forming a long terminal cluster. Outer calyx of 3 bracts united at the base. Sepals and petals 5; stamens numerous, united by their filaments into a long tube; carpels numerous. Fruit many 1-seeded little nuts, in a ring, separating when ripe. More or less hairy herbs with more or less lobed leaves.

Sea Tree-Mallow. (Lavatera arborea, Linn.)—The only British species (as just described). Flowers many, 1½ inches across, pale purple-rose, deeper towards the centre, with darker veins; the bracts of the outer calyx large and broad; the sepals smaller than the bracts; the stem 2–8 feet high, erect, woody, thick; and the leaves stalked, large, roundish, heart-shaped (cordate) at the base, the lower ones 7-lobed and the upper ones 5-lobed, all with scalloped (crenate) edges. [*Plate* 28.
Not common. Rocky, stony ground near the sea on the south and west coasts. June—September. Perennial.

MALLOW. (MALVA, LINN.)—Similar to the Marsh and Tree Mallow, differing in having an outer calyx of 3 bracts which are not united.

Musk Mallow. (Malva moschata, Linn.)—Flowers large, 1½–2½ inches across, rose-pink, rarely white, crowded at the top of the stems and branches. Outer calyx of 3 small strap-shaped bracts. Sepals and petals 5, the sepals twice as long as the bracts; stamens numerous, with the filaments united into a tube round the numerous carpels. Fruit a ring of 1-seeded little nuts. Stems 2–3 feet high, erect, hairy, light green; the leaves long-stalked, the lower kidney-shaped (reniform), 3-cleft towards the base into broad, scalloped (crenate) segments; the upper ones deeply lobed to the base into three segments, which in their turn are deeply lobed to the midrib (pinnatifid) into 5–7 narrow segments, all with a slight musky odour when rubbed.
Common. Hedge banks and borders of fields. July—August. Perennial.

Common Mallow. (Malva sylvestris, Linn.)—A similar plant, with showy flowers 1½ inches across, lilac with crimson veins; the root leaves kidney-shaped (reniform), with 5–7 short, broad lobes. [*Plate* 28.
Common. Waste ground. June—September. Perennial.

Dwarf Mallow. (Malva rotundifolia, Linn.)—A smaller prostrate plant, with very pale pink flowers ¾–1 inch across, and round, heart-shaped leaves lobed towards the base into 3–7 shallow, rounded segments.
Common. Waste places. Perennial.

THE FLAX FAMILY

[ORDER XIX. LINEÆ]

THE Flax is distinguished from the Pink Family by the fruit being divided into distinct cells, and it is distinguished from the Geranium Family by its capsular fruit and by its entire leaves without stipules.

It is a most useful, though a small, order, and is widely spread over the world. The flowers are very beautiful, extremely fragile, and of delicate colour. Those native to other countries and cultivated in our gardens are of gorgeous hues—vivid blues, reds, and orange. Apart from beauty, the Flax is one of the most useful of our plants, as the fibre of its slender stem is so strong and fine that it is invaluable for manufacturing into material for clothing. It is probably one of the first fibres ever used for weaving. We find that the Egyptians cultivated it largely, and it is many times mentioned in the early books of the Old Testament. Its seeds also are most useful. They contain a large quantity of oil, which is separated by crushing. This linseed oil is largely used by artists and painters. The cake which remains after extracting the oil is the oil-cake on which cattle are often fed in the winter, or when ground up it is the linseed-meal which we make into poultices. Flax will thrive in the cold countries of Northern Europe and in the tropical regions of Africa and Asia. Its cultivation and manufacture into linen form the chief industries of Ireland.

FLAX-SEED, ALL-SEED. (**RADIOLA, ROTH.**)—A genus consisting of the one species—

Common Flax-seed. (**Radiola linoides, Roth.**)—Flowers minute, white, numerous, in terminal clusters. Sepals 4, each 3-cleft, united half way up; petals 4, minute, falling quickly; stamens 4, alternating with 4 minute teeth; carpels 4, united into a seedcase and separating into 4 styles. Fruit a roundish capsule splitting into 4 cells, each containing 2 seeds. A minute, much branched, compact herb, 1–3 inches high, with opposite, entire leaves. [*Plate* 29. Not common. Sandy heaths and commons. July—August. Annual.

FLAX. (**LINUM, LINN.**)—Flowers showy, white or brightly coloured, in clusters with the central flower opening first (cymes). Sepals 5, not united (free), entire, remaining with the fruit; petals 5, falling quickly (fugacious); stamens 5, united at the base into a ring and alternating with 5 small teeth; carpels and styles 5, becoming in fruit a capsule splitting into 5 2-seeded cells,

THE FLAX FAMILY. (ORDER XIX. LINEÆ.)

CALYX of 5 rarely 4 SEPALS, free or rarely united at the base, remaining with the fruit (persistent), inserted below the seedcase (hypogynous).

COROLLA of 5, rarely 4, PETALS, twisted in bud, falling very quickly (fugacious), inserted below the seedcase.

STAMENS 5, (in the British species), the filaments united at the base into a ring, with 5 small teeth (staminodes) alternating with the stamens.

PISTIL of 5, rarely 4, CARPELS, uniting into the seedcase (ovary), and separating into the same number of styles, each tipped with a pin-head-like stigma.

FRUIT usually a capsule, roundish & dry, opening at the top by valves, with as many cells as carpels, each containing 2 seeds.

FLOWERS in irregular loose clusters, the petals (in British species) blue or white, falling quickly (fugacious).

LEAVES entire, alternate or rarely opposite, without stipules.

DISTINGUISHED BY the flowers having the same number of sepals, petals, stamens & carpels, usually 5, with the stamens united at the base into a ring with a small tooth between each stamen, by the pin-head-like stigmas, round capsules & entire leaves.

PERENNIAL FLAX.

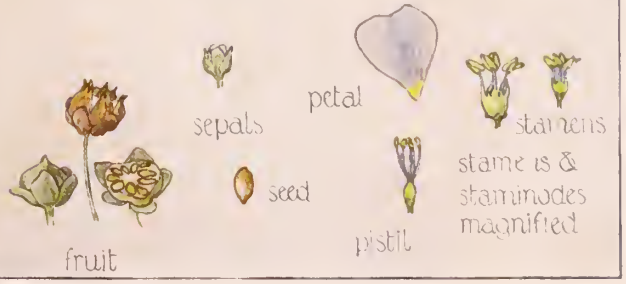
LINUM PERENNE.

CATHARTIC or PURGING FLAX.

LINUM CATHARTICUM.

COMMON ALL-SEED.

RADIOLA LINOIDES.



each nearly divided again into two, opening from the top by 10 teeth. Small herbs, with entire, alternate, rarely opposite leaves.

Cathartic or Purging Flax. (Linum catharticum, Linn.)—As just described. Flowers ¼ inch across, white, yellow towards the centre, in very loose terminal clusters, the central flower opening first (cymes). Sepals 5, lance-shaped; petals 5, pure white with yellow bases. Capsules round, splitting into 10 1-seeded cells. Stem 2–10 inches high, very slender, and the leaves small, opposite, and oblong. [*Plate* 29.

Common. Banks, commons, pastures. June—September. Annual.

Perennial Flax. (Linum perenne, Linn.)—Flowers few, 1–1½ inches across, bright blue. Sepals 5, blunt; petals 5, falling very quickly, bright blue; stamens 5, alternating with 5 small teeth (staminodes); carpels 5, uniting into a 5-celled seedcase, and separating into 5 styles. Fruit a round capsule, 10-celled, each cell containing 1 seed. Stems 1–2 feet high, wiry, in dense tufts; and the leaves alternate, narrow, pointed, small, and crowded. [*Plate* 29.

Rare, local. Rough, chalky ground. June—July. Perennial.

Narrow-leaved Flax. (Linum angustifolium, Huds.)—A very similar species to the Perennial Flax (Linum perenne), but with smaller, paler blue flowers, pointed sepals, the round capsule ending in an abrupt point, fewer stems, and narrower leaves.

Uncommon. Dry banks and borders of fields. July—August. Perennial.

***Common Flax. (Linum usitatissimum, Linn.)**—Not a native. Differing from the Perennial Flax (Linum perenne) in its pointed sepals, its stouter stems, which are generally solitary, and its broader, larger, and more distant leaves. This is the flax from the fibre of which we obtain the thread which is made into linen, etc. The seeds are also valuable, as they are full of oil and have many uses.

Rare, an escape from cultivation. Cultivated fields. June—July. Annual.

THE CRANE'S-BILL FAMILY

[ORDER XX. GERANIACEÆ]

CALYX of 5 SEPALS, overlapping in bud, sometimes united at the base, remaining with the fruit (persistent), inserted below the seedcase (hypogynous).

COROLLA of 5 PETALS, twisted in bud, usually strongly veined, inserted below the seedcase (hypogynous).

STAMENS, 5 or 10, with the filaments often united at the base, inserted below the seedcase (hypogynous).

PISTIL of 5 CARPELS, united into a 5-celled seedcase (ovary), 5 styles more or less united into a column crowned with 5 spreading stigmas; the 5 styles frequently lengthen and remain with the fruit (persistent) and form a beak.

FRUIT a capsule, generally beaked, 5-celled, with 1, 2 or more seeds in each cell and with a central axis to which the 5 cells are attached and from which they usually separate elastically, so scattering the seeds.

FLOWERS usually very handsome and brightly coloured, regular in the British species except in the Balsam (Impatiens) when the sepals and petals are very irregular in size and shape, usually in clusters of 2 or more, rarely solitary.

STEMS often swollen at the joints (nodes).

LEAVES opposite, rarely alternate, usually more or less deeply lobed or divided, usually with stipules.

DISTINGUISHED BY the 5 sepals, petals, and carpels, the 5 or 10 stamens, the 5-celled, usually beaked, capsule, opening elastically by 5 valves, and by the usually lobed or divided leaves.

THE Geranium Family is distinguished from any other by its remarkable fruit, which is usually beaked, but which always consists of 5 seedcases (containing 1, 2 or more seeds) clustered round a central axis, from which, when ripe, first one and then another whole seedcase separates with a jerk, at the same time opening and throwing out the seed. The beak, when present, is formed of the persistent styles, which lengthen and harden with the central axis, and then, when ripe, each one of them separates with its seedcase and rolls upwards bearing the empty seedcase at the base.

It is a large family, widely spread over the whole globe, thriving in the temperate regions of the Northern Hemisphere and very abundant in South Africa, from which country we obtain the beautiful Pelargoniums of our greenhouses and our cultivated Geraniums, most of which are really Pelargoniums. The Tropæolums, one of which is our garden Nasturtium, are nearly allied. Some of the species abound with a volatile oil and acids, and others have edible roots.

GERANIUM, CRANE'S BILL. (GERANIUM, LINN.)—Flowers stalked, purple, rose, lilac, or white, solitary, or 2 together starting from the same point on the main flowering stem with 2 bracts at the base. Sepals 5, remaining with the seeds (persistent); petals 5; stamens 10, 5 being

shorter and rarely without anthers; carpels 5, uniting into a 5-celled seedcase (ovary), 5 styles more or less united into a column which is surmounted by the 5 spreading stigmas. Fruit a beaked capsule consisting of 5 1-seeded cells which are attached to a central axis, from which each separates from the base, elastically, rolling upwards and so jerking the seeds to a considerable distance. Herbs with swollen nodes and opposite leaves, lobed or divided to the base (palmatifid or palmate).

Bloody Crane's Bill. (Geranium sanguineum, Linn.)—As just described. The flowers large, 1–1½ inches across, deep crimson, solitary on long stalks, with abruptly pointed sepals and slightly notched petals; the stem 1–2 feet high, thick, and woody; the leaves all round, stalked and deeply lobed to the base into 5 or 7 broad segments which are 3-cleft (palmatifid). [*Plate* 30.
Not common. Dry woods and pastures. July—August. Perennial.

A variety of this species ((**v. lancastriense, With.**), with white or flesh-coloured flowers veined with red, has been found on the seashore at Walney Island, Lancashire.

***Geranium striatum, Linn.** An escape from cultivation, with rather large, pale flowers veined with red, 2 together, and long hairs on the stems.

***Knotty Crane's-bill. (Geranium nodosum, Linn.)**—An escape from cultivation, similar to the last species but with reddish-purple flowers and smooth stems.

***Dusky Crane's-bill. (Geranium phæum, Linn.)**—Another escape from cultivation, with dull purplish-black flowers, entire petals and leaves only slightly lobed towards the base.
Not a native. Found in plantations. May—July. Perennial.

Wood Crane's-bill. (Geranium sylvaticum, Linn.)—Flowers 1 inch across, purplish, 2 together on numerous short flower-stalks forming a rather dense cluster (dichotomous cyme); the sepals ending in an abrupt point, and the petals slightly notched; the fruit erect. [As described in the genus Geranium.] The stem 1–2 feet high, erect; the leaves of the root (radical) on long stalks, lobed almost to the base (palmately) into 7 or 9 segments, all coarsely cut or serrated, and those of the stem nearly stalkless and lobed into 3 or 5 similar segments.
Not common. Woods, hilly pastures. June—July. Perennial.

Meadow Crane's-bill. (Geranium pratense, Linn.)—The largest British Crane's-bill, very similar to the Wood Crane's-bill (Geranium sylvaticum), but with larger flowers, 1¼–1½ inches across, bluish-purple, the stalk bent downwards after flowering, each sepal ending in a long abrupt point (mucronate), the stem 1–4 feet high, much branched at the top, and the leaves with narrower lobes, which are more deeply cut. [*Plate* 30.
Common. Moist meadows and riversides. June—September. Perennial.

Mountain Crane's-bill. (Geranium pyrenaicum, Burm. fil.)—Flowers ½–¾ inch across, red, 2 together on slender flower-stems, the sepals ending in an abrupt point (mucronate), the petals notched; the fruit bent downwards. [As described in the genus Geranium.] The stems 6 inches to 2 feet high, with spreading white hairs, and the leaves round, deeply lobed towards the base into 5 or 7 lobes, which are 3-cleft into broad, blunt lobes.
Not common. Meadows and waysides. June—August. Perennial.

Dove's-foot Crane's-bill. (Geranium molle, Linn.)—Flowers smaller than in any of the preceding species, ⅓–½ inch across, rose or lilac, 2 together, the sepals hardly pointed, the petals deeply notched, scarcely longer than the sepals; the fruit wrinkled and erect. [As described in the genus Geranium.] The stems 8–12 inches long, with long soft hair; the leaves round, those of the root (radical) lobed half-way towards the base into 7–9 broad, cut lobes, and those of the stem with 5 deeper and narrower lobes.
Very common. Meadows, banks, hedgerows, waste places. April—August. Annual.

Small-flowered Crane's-bill. (Geranium pusillum, Linn.)—A very similar species to the Dove's-foot Crane's-bill (Geranium molle), but smaller; the flowers smaller and paler, the sepals ending in a fine point; the stamens 10, of which usually only 5 have anthers; the fruit hairy, not wrinkled; the stem 6–12 inches long, prostrate, less hairy; and the leaves small, roundish, and more deeply lobed.

Common. Waste ground. June—September. Annual.

Round-leaved Crane's-bill. (Geranium rotundifolium, Linn.)—Also a very similar species to the Dove's-foot Crane's-bill (Geranium molle), differing in having flesh-coloured flowers with entire petals, and slightly pointed sepals; in the fruit being hairy and not wrinkled; and in the round leaves being very slightly lobed and of a pale whitish-green colour.

Rare. Hedge-banks and waste places in central and southern England. June—July. Annual.

Jagged-leaved Crane's-bill. (Geranium dissectum, Linn.)—Flowers $\frac{1}{4}$–$\frac{1}{2}$ inch across, bright red, 2 together, the sepals with distinct, abrupt points (mucronate), the petals deeply notched, about as long as the sepals; the fruit hairy and not wrinkled; the stems 1–2 feet high, more erect, spreading and hairy, and the leaves roundish, and divided almost to the base into 5–7 narrow segments, which are 3-cleft.

Very common. Waste places, waysides. May—August. Annual.

Long-stalked Crane's-bill. (Geranium columbinum, Linn.)—A very similar species to the Jagged-leaved Crane's-bill (Geranium dissectum), but with fewer and larger flowers, $\frac{1}{2}$–$\frac{3}{4}$ inch across, of a bluish rose-colour, the sepals with slender points, the petals entire or slightly notched; the fruit smooth, or with a few hairs, not wrinkled; and the deeply divided leaves with narrower segments.

Local, not uncommon. Thickets, waste places, especially on chalky soil. June—August. Annual or Biennial.

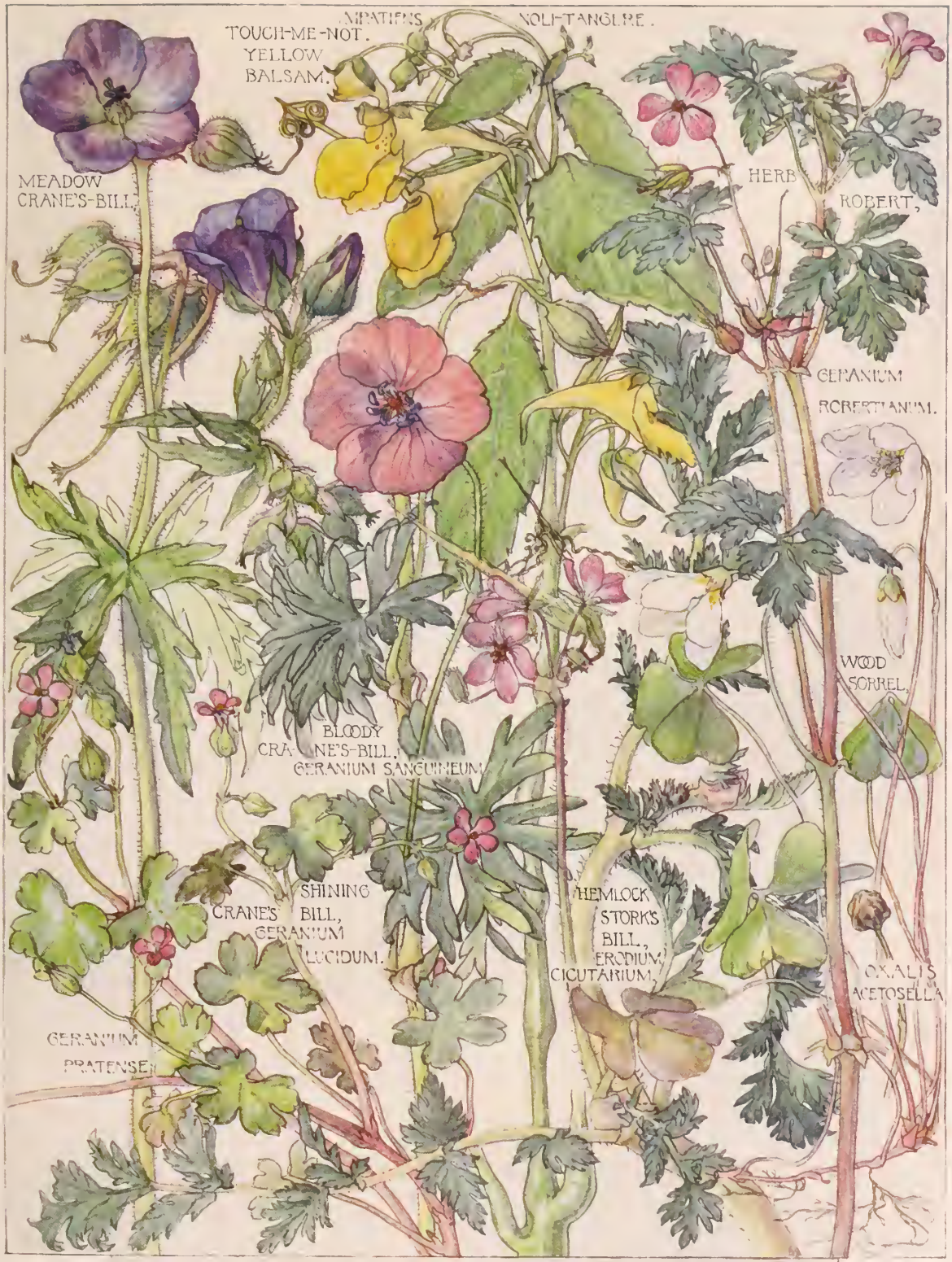
Shining Crane's-bill. (Geranium lucidum, Linn.)—Flowers small, $\frac{1}{4}$–$\frac{3}{8}$ inch across, rose-colour, 2 together, the sepals with long points, the petals entire; the fruit smooth and wrinkled. [As described in the genus Geranium.] The stems 6–18 inches long, prostrate, brittle, juicy, shining, tinged with red; and the leaves round, shining, fleshy, tinged with red, lobed towards the base into 5–7 broad, notched segments. [*Plate* 30.

Not uncommon, rather local. Rocky places, stone walls. May—September. Annual.

Herb Robert. (Geranium Robertianum, Linn.)—Flowers $\frac{1}{2}$–$\frac{3}{4}$ inch across, bright pink, veined, rarely white, 2 together, the sepals with long points, hairy, the petals entire, longer than the sepals; the fruit smooth and wrinkled. [As described in the genus Geranium.] The stem 1–2 feet high, hairy, erect or spreading, frequently red; and the leaves divided to the base into 3 (palmate) segments, which in their turn are divided to the midrib into several deeply toothed lobes (pinnatifid). The whole plant has a disagreeable smell when bruised, and often becomes a beautiful red in the autumn. [*Plate* 30.

Very common. Waste places, hedgerows. May—September. Annual.

STORK'S-BILL. (ERODIUM, L'HÉRIT.)—A very similar genus to the Geranium (5 sepals, 5 petals, 10 stamens, 5 carpels, beaked capsule), differing from it in there being usually more than 2 flowers growing from the same point on the flower-stem (in umbels); in 5 of the stamens having anthers and 5 not; in the beaks of the 5 cells of the capsule being clothed with long hairs on the inner side and being spirally twisted after they have thrown out their seeds, and in the leaves, which always have stipules at the base, being always lobed or divided into distinct leaflets towards the midrib (pinnatifid or pinnate).


TOUCH-ME-NOT.
YELLOW
BALSAM.
MEADOW
CRANE'S-BILL.
HERB
ROBERT.
GERANIUM
ROBERTIANUM.
WOOD
SORREL.
BLOODY
CRANE'S-BILL,
GERANIUM SANGUINEUM.
SHINING
CRANE'S BILL,
GERANIUM
LUCIDUM.
HEMLOCK
STORK'S
BILL,
ERODIUM
CICUTARIUM.
OXALIS
ACETOSELLA.
GERANIUM
PRATENSE.

Parts of the Meadow Crane's-bill
calyx
petal
stamens
pistil
fruit

Hemlock Stork's-bill. (**Erodium cicutarium, L'Hérit.**)—As just described. The flowers $\frac{3}{8}$–$\frac{1}{2}$ inch across, rosy or white, 2–10 (in an umbel) growing from the same point on the flower-stem, the sepals pointed, as long as the petals, the petals entire, unequal, 2 of them sometimes with a spot at the base, falling quickly; the stems at first very short, becoming even 2 feet long, prostrate and hairy; the leaves divided from the midrib into distinct leaflets (pinnate), which in their turn are deeply lobed; the stipules lance-shaped; and the whole plant covered with soft hairs. [*Plate* 30.

Common. Near the sea, waste places, sandy banks. May—September. Annual or Biennial.

Musk Stork's-bill. (**Erodium moschatum, L'Hérit.**)—A similar but larger and coarser plant, the flowers pale purplish-pink or nearly white; the stem 1–2 feet long, thicker, reddish; the leaves divided to the midrib into fewer and larger leaflets which are toothed, not lobed; the stipules egg-shaped (ovate); and the whole plant covered with hairs which are often gland-tipped and usually smelling strongly of musk.

Rare. Heaths and sandy places especially near the sea, in the south-west of England, Ireland, and the Channel Isles. June—July. Annual.

Sea Stork's-bill. (**Erodium maritimum, L'Hérit.**)—Another similar species, smaller and softly hairy, with usually only one very small, pale purplish-rose flower on a stalk; the stem 6–8 inches long; and the leaves egg-shaped, slightly heart-shaped at the base, or even slightly lobed, but never divided into separate leaflets.

Rare. Sandy sea-coasts in the west of England. May—September. Annual or Biennial.

WOOD-SORREL. (**OXALIS, LINN.**)—Flowers solitary, or in a cluster, all starting from the same point on the main flowering stem (umbel); sepals 5, united at the base, remaining with the fruit (persistent); petals 5, often united at the base, twisted in bud; stamens 10, all with anthers, the filaments united at the base, the 5 opposite the petals being longer than the others; carpels 5, united into an angular, 5-celled, seedcase (ovary), separating into 5 styles. The fruit a 5-celled, 5-angled capsule, never beaked, opening by 5 valves to free the numerous seeds which are enveloped in an elastic coating, which, suddenly splitting, jerks the seeds to a considerable distance. Herbs with tuberous or creeping roots, and alternate long-stalked leaves, divided to the base, in European species, into 3 distinct leaflets (trifoliate).

Common Wood Sorrel. (**Oxalis Acetosella, Linn.**)—As just described. The flowers rather large, fragile, bell-shaped, white or pinkish, delicately veined with mauve, and stained with deep yellow at the base, solitary, on long stalks springing from the root (scapes), which have 2 small bracts about half way up; the sepals small, and broadly pointed; and the petals entire. The leaves all from the root (radical), on long stalks, divided to the base into 3 distinct leaflets (trifoliate), which are deeply notched at the apex, yellowish-green, tinged with purple underneath. The root creeping. The fruits are produced by insignificant flowers without petals appearing later on in the summer. [*Plate* 30.

Common. Damp woods and shady places. March—August. Perennial.

***Procumbent Yellow Wood Sorrel.** (**Oxalis corniculata, Linn.**)—Not a native, with clusters of 2 or 3 yellow flowers, all starting from the same point on the main flowering stalk (umbels), and the stem and leaves downy with small hairs.

Not a native, though apparently naturalised in Cornwall, Devonshire, and a few other counties. June—September. Annual.

***Upright Yellow Wood Sorrel.** (**Oxalis stricta, Linn.**)—Another and similar species,

naturalised in Britain, differing in having 2–8 yellow flowers in each cluster; the stem upright; and both stem and leaves without hairs.
Not a native, though apparently naturalised in many counties in the south. July—August. Annual or perennial.

BALSAM. (IMPATIENS, LINN.)—Flowers irregular, generally handsome, yellow, purple, rose-colour, or white, solitary, or in clusters. Sepals 3, coloured like petals (petaloid), unequal, the back one hooded and spurred at the base, the 2 front ones very small; petals 3–5, the 2 side ones united, and appearing as a single petal, deeply lobed; stamens 5, with short, flattened filaments, and anthers joining together round the pistil; carpels 5, uniting into a 5-celled seedcase (ovary), which is surmounted by minute stigmas, the styles being absent or very short. Fruit a capsule, consisting of 5 many-seeded cells, which are attached to a central axis, from which each separates from the base, elastically, rolling upwards, and so jerking the seeds to a considerable distance. Erect, succulent plants, with alternate, undivided (simple) leaves.

Yellow Balsam, Touch-me-not. (Impatiens Noli-tangere, Linn.)—The only native species (as just described). The flowers large, showy, pale yellow spotted with orange, in small clusters of 1–3; the sepals pale yellow spotted with orange, the hooded sepal ending in a long curved-up spur; the petals pale yellow spotted with orange; the capsule 1–1½ inches long, and produced, in this country, by minute imperfect flowers, not by the beautiful showy ones; the stem 1–2 feet high, branched, smooth, juicy, swollen at the nodes; the leaves alternate, oval, pointed, and toothed, and of a pale green colour. [*Plate* 30.
Rare. In moist, shady places. July—September. Annual.

Two other varieties, ***Impatiens biflora, Walt.**, with orange flowers, and ***Impatiens parviflora, DC.**, with small yellow flowers, are occasionally found, but are not natives.

THE PEA FAMILY (ORDER XXV, LEGUMINOSÆ.

CALYX of 5 SEPALS, united into a tube & separating into 5 often unequal teeth, remaining with the fruit, inserted below the seedcase

COROLLA of 5 PETALS, unequal, butterfly-shaped (papilionaceous), the uppermost, the standard (vexillum), the outer in bud, is the largest and becomes erect in flower, the two side ones, the wings (alæ), are both equal; and the two lower, also equal, unite more or less and form the keel (carina); inserted below the seedcase (hypogynous).

STAMENS 10, the filaments being all united into a sheath round the seedcase (monadelphous), or nine being united and the tenth, which is the uppermost, free (diadelphous); inserted below the seedcase (hypogynous).

PISTIL of 1 CARPEL composed of a seedcase (ovary), style & stigma

FRUIT a pod (legume), a dry, many seeded fruit opening down both sides to free the seeds.

FLOWERS generally in clusters, rarely solitary, irregular.

LEAVES alternate, divided into distinct leaflets, usually with conspicuous stipules.

DISTINGUISHED BY the butterfly-shaped petals, the stamens with united filaments, the pod-like fruit, and the leaves divided into distinct leaflets

BUSH VETCH, VICIA SEPIUM.

THE PEA FAMILY

[ORDER XXV. LEGUMINOSÆ]

THIS family is distinguished by the 5 unequal butterfly-shaped petals and by the pod-like fruit (a legume) opening down both sides. It is divided into 3 sub-orders, of which only one, Papilionaceæ, is represented in the British Isles. In it both the above characteristics are present, and the filaments of the 10 stamens are always united into one or two bundles. In a few tropical species the fruit becomes a fleshy, plum-like fruit (a drupe), but then the flowers are butterfly-shaped; while in the other 2 sub-orders, one represented by Cassias and the other by Mimosas, the flower is not butterfly-shaped, but the fruit is always a legume.

The Pea Family is a very important and a very large one—in numbers second only to the Daisy Family (Compositæ). It is distributed all over the world, in the temperate as in the tropical regions, and its members vary in size from forest trees to little prostrate herbs.

Among the many cultivated species to be found in our gardens and greenhouses are the False Acacia (Robinia) and Laburnum; the Bladder Senna, Wistaria, and Sensitive plant (Mimosa); the crimson clusters of the French Honeysuckle, the Lupin, and many other beautiful examples.

As foods, peas, beans, and lentils are of great use.

Clovers, Lucerne, Vetches, and Sainfoin are invaluable as fodder; Indigo and Logwood are useful as dyes; the Rosewood, Brazilwood, and the American Locust Trees make excellent timber; the Arabian Acacias and the Wattle Gums of Australia give us gum; and many species are valuable medicinally, such as the Senna, Liquorice, and Tamarind plants.

GREEN-WEED. (GENISTA, LINN.)—Flowers yellow, in clusters, terminating the main stem and branches (racemes). Calyx of 5 sepals united into a bell-shaped tube, and separating into 5 teeth, of which the 2 upper are much longer than the 3 lower; corolla of 5 irregular petals, butterfly-shaped (papilionaceous); stamens 10, the filaments all united into a complete sheath round the seedcase (monadelphous); carpel 1; fruit a long pod, much longer than the calyx, oblong, with several seeds. Small shrubs, sometimes with spines, the leaves usually simple and entire, with inconspicuous stipules.

Petty or Needle Whin. (Genista anglica, Linn.)—As just described. Flowers about ½ inch long, yellow, in loose clusters (racemes). The pod oval, smooth, inflated; the stem about 1 foot high, woody, and spinous; and the leaves small, undivided (simple), egg- or lance-shaped.
Not common. Heaths and commons. May—June. Shrub.

Hairy Green-weed. (Genista pilosa, Linn.)—A similar shrub, with the outside of the sepals, petals, pods, and the underside of the leaves covered with silky hairs, and the stems having no spines.
Rare, local. Dry sandy and gravelly heaths. May and again in September. Shrub.

Dyer's Green-weed. (Genista tinctoria, Linn.)—Another similar shrub to the Needle Whin (Genista anglica), with the flowers a little larger and of a brighter yellow; the pods longer and flatter; the stems without spines; and the leaves pointed. All parts of this shrub yield a yellow dye. [*Plate* 32.

Not common. Pastures on clay, heaths. June—August. Shrub.

GORSE, FURZE. (ULEX, LINN.)—Flowers yellow, in the axils of the leaves, forming terminal clusters (racemes). Calyx of 5 sepals, united into a tube and divided to the base into 2 lips, the upper consisting of 2, the lower of 3 sepals, coloured like petals (petaloid), with 2 or 3 small bracts at the base; corolla of 5 irregular petals, butterfly-shaped (papilionaceous); stamens 10, the filaments all united together into a sheath (monadelphous); carpel 1. Fruit a short oval pod, scarcely longer than the calyx, few-seeded. Small, densely spinous shrubs, with prickle-like leaves, and no stipules.

Common Gorse, Furze, or Whin. (Ulex europæus, Linn.)—As just described. The bright yellow flowers $\frac{3}{4}$ inch long, solitary or in pairs, in the axils of the leaves, forming dense terminal spikes (racemes); the yellowish sepals being nearly as long as the petals; the butterfly-shaped petals with the wings longer than the keel; the bracts oval; the black pods a shade longer than the calyx; and the stems 2–6 feet high, much branched, woody, copiously covered with spines, which take the place of leaves, each branch ending in a thick spine.

Very common. Heaths, commons, sandy or stony places. February—July. Shrub.

Larger Dwarf Gorse. (Ulex Gallii, Planch.)—A very similar shrub, differing in its more orange, smaller flowers, about $\frac{1}{2}$ inch long, its minute roundish bracts, and its pods as long as or shorter than the calyx. [*Plate* 32.

Common locally. Heaths, mountain-sides. August—November. Shrub.

Lesser Dwarf Gorse. (Ulex nanus, Forster.)—A smaller, more prostrate shrub, with smaller, pale yellow flowers, the wing petals shorter than the keel, the spines weak and short, and the bracts minute and roundish.

Common locally. Heaths, chiefly in the south of England. August—November. Perennial.

BROOM. (CYTISUS, LINN.)—Flowers large, bright yellow, solitary or in pairs, forming leafy clusters (racemes). Calyx of 5 sepals united into a bell-shaped tube, which is divided at the top into 2 short lips, the upper with 2 and the lower with 3 minute teeth; petals 5, butterfly-shaped (papilionaceous), broad, the standard petal broadly egg-shaped; stamens 10, the filaments all united into a complete sheath (monadelphous); carpel 1, with a very long curved or coiled style, and a thickened stigma. Fruit a long, compressed pod, much longer than the calyx, with many seeds. Shrubs with angular green branches, no spines, and leaves undivided (simple) or divided to the base into 3 leaflets (trifoliate), without stipules.

Common Broom. (Cytisus scoparius, Link.)—The only British species (as just described). The flowers 1 inch long, bright yellow, with the style spirally coiled; the pods $1\frac{1}{2}$–$2\frac{1}{2}$ inches long, black, flat, with hairy margins; the stem 2–6 feet high; and the leaves divided to the base into 3 leaflets (trifoliate). [*Plate* 32.

Common. Sandy places. May—June. Perennial.

REST HARROW. (ONONIS, LINN.)—Flowers pink in British species, solitary in the axils of the leaves, forming leafy clusters terminating the main stem and branches. Calyx of 5 sepals united into a tube and separating into 5 narrow teeth; petals 5, butterfly-shaped (papilionaceous),

DYER'S GREEN-WEED.
GENISTA TINCTORIA.
COMMON GORSE FURZE or WHIN.
ULEX NANUS, v. GALLII.
COMMON BROOM.
CYTISUS SCOPARIUS.

the standard broad, the keel pointed and curved inwards; stamens 10, with all the filaments united into a sheath (monadelphous); carpel 1, with its style long and curved. Pod short, inflated, enclosed in or very slightly longer than the calyx, with few seeds. Herbs or small undershrubs with leaves usually divided to the midrib into three leaflets (pinnately trifoliate), rarely undivided (simple), with leafy stipules adhering to the leaf-stalks.

Creeping Rest Harrow, Wild Liquorice. (Ononis repens, Linn.)—As just described. The pink flowers ¾ inch long, solitary in the axils of the leaves forming elongated terminal clusters; the pod, inflated, shorter than the calyx; the stem 1–2 feet long, branched, tough, prostrate, hairy, with runners: the leaves divided to the midrib (pinnate) into 3 oblong leaflets (trifoliate), and the leafy stipules adhering to the leaf-stalk. The whole plant has a strong scent. [*Plate* 33.

Common. Heaths, sandy shores, dry pastures. June—September. Perennial.

Erect Rest Harrow. (Ononis spinosa, Linn.)—A very similar plant, with flowers of a deeper pink; a more erect stem, spinous, without runners; and pods longer than the calyx.
Common. Waste places, roadsides. June—September. Perennial.

Small Spreading Rest Harrow. (Ononis reclinata, Linn.)—A small annual species with cylindrical drooping pods, and the stem from 2–6 inches high, sticky (viscid) and hairy.
Very rare. Channel Isles, sandy cliffs. June—July. Annual.

FENUGREEK. (TRIGONELLA, LINN.)—Flowers solitary or in short clusters (umbels), yellow or white. Calyx of 5 sepals united into a tube and separating into 5 nearly equal teeth; petals 5, butterfly-shaped (papilionaceous); stamens 10, 9 united, the upper one free (diadelphous); carpel 1. Fruit a pod, longer than the calyx, compressed, many-seeded. Herbs with leaves divided to the midrib into 3 leaflets (trifoliate), and with leafy stipules adhering to the leaf-stalk.

Bird's-foot Fenugreek. (Trigonella purpurascens, Lam.)—The only British species (as just described). The flowers small, ⅜ inch long, white tinged with flesh-colour, 1–3 together, the petals remaining with the fruit (persistent), the pod narrow, twice as long as the calyx, and the prostrate stems 2–8 inches long. Strongly scented.
Rare. Sandy pastures, especially near the sea. June—August. Annual or biennial.

MEDICK. (MEDICAGO, LINN.)—Flowers yellow or purple, in short loose clusters (racemes) terminating the main stem and branches. Calyx of 5 sepals united into a bell-shaped tube (campanulate), and separating into 5 teeth; petals 5, butterfly-shaped (papilionaceous); stamens 10, 9 united, the tenth free (diadelphous); carpel 1. Fruit a pod, longer than the calyx, few-seeded, much curved or spirally coiled, generally decaying to free the seeds (indehiscent) instead of opening by valves. Herbs with the leaves divided to the midrib (pinnate) into 3 leaflets (trifoliate), the stipules being leafy and adhering to the leaf-stalk.

***Lucerne or Purple Medick. (Medicago sativa, Linn.)**—Not a native. As just described. The flowers ½ inch long, numerous, mauve or rarely yellowish, in terminal clusters (racemes); the fruit a pod, spirally coiled, forming 2–3 coils, downy, brown; the stem 1–2 feet high, erect and hollow; the leaves divided to the midrib into 3 leaflets (pinnately trifoliate), the leaflets being oblong, toothed, and terminating in a short, sharp point (apiculate). [*Plate* 33.
Common in districts where Lucerne is cultivated for fodder. Dry banks, borders of fields. June—July. Perennial.

Wood Medick. (Medicago sylvestris, Fries.)—A similar plant, with yellow or blackish-green flowers and flat pods coiled into a semicircle or into a complete ring.
Very rare. Sandy places in Norfolk and Suffolk. June—July. Perennial.

Sickle Medick. (**Medicago falcata, Linn.**)—Another similar plant, with yellow flowers, prostrate stems, and sickle-shaped pods.

Very rare. Sandy places in the eastern counties. June—July. Perennial.

Black Medick, Nonsuch. (**Medicago lupulina, Linn.**)—Flowers small, yellow, in dense, oblong heads. Pods black, 1-seeded, kidney-shaped (reniform). [As described in the genus Medicago]. Stems 6–24 inches long, prostrate, spreading, and hairy; the leaves divided to the midrib into 3 leaflets (pinnately trifoliate), which are finely toothed and inversely egg-shaped (obovate), with broad, finely-toothed stipules. This little plant may be easily mistaken for one of the small yellow clovers until the fruit is examined. [*Plate* 33.

Very common. Pastures, waste ground. June—August. Annual or biennial.

Toothed Medick. (**Medicago denticulata, Willd.**)—A similar species, with the bright yellow flowers solitary or 2–5 together; the pods closely spirally coiled, bordered with 2 rows of spines; the stems smooth; the leaves inversely heart-shaped (obcordate); and the stipules jagged.

Rare. Sandy places in the south and east of England. April—August. Annual.

Spotted Medick. (**Medicago arabica, Huds.**)—Very like the Toothed Medick but generally larger, the leaves having a purple spot in the centre, the stipules being toothed, and the pods spirally coiled into prickly balls.

Not common. Gravelly soil in the south and west of England. May—September. Annual.

Little Bur-Medick. (**Medicago minima, Desr.**)—A species similar to the last two, but smaller and downy, the flowers minute, yellow, the pods spirally coiled into prickly balls but smaller and with longer prickles than in the Spotted Medick, and the stipules entire or very slightly toothed.

Rare. Sandy places in the south-east of England. May—July. Annual.

MELILOT. (**MELILOTUS, HALL.**)—Flowers small, drooping, yellow or white, in erect, long, terminal clusters (racemes). Calyx of 5 united sepals, bell-shaped (campanulate), terminating in 5 teeth; petals 5, butterfly-shaped (papilionaceous), the standard scarcely spreading; stamens 10, 9 united together, the tenth free (diadelphous). Fruit a pod, short, but longer than the calyx, straight, oval, or oblong, few-seeded, not opening by valves but decaying to free the seeds (indehiscent). Herbs with leaves divided to the midrib into 3 finely-toothed leaflets (pinnately trifoliate), with the stipules adhering to the leaf-stalks.

Common Yellow Melilot. (**Melilotus officinalis, Lam.**)—The only true native (as just described). Flowers ¼ inch long, bright lemon-yellow, in long, terminal clusters; the petals 5, all equal in length, twice as long as the sepals; pods small, oval, pointed, hairy, 1–2-seeded; and the stem 2–3 feet high, erect and branched. [*Plate* 33.

Fairly common. Waste places. June—August. Annual or Biennial.

***White Melilot** (**Melilotus alba, Desr.**), a species with small white flowers and smooth pods; ***Field Melilot** (**Melilotus arvensis, Wallr.**), with pale yellow or white flowers and smooth brownish pods; and ***Small-flowered Melilot** (**Melilotus indica, All.**), with very small pale yellow flowers and smooth round olive-green pods, are occasionally to be found, but they are not natives.

CLOVER. (**TRIFOLIUM, LINN.**)—Flowers small, white, red, or yellow, stalkless (sessile) or nearly so (sub-sessile), in dense oval heads. Calyx of 5 united sepals, bell-shaped or tubular, terminating in 5 teeth, generally unequal; petals 5, narrow, butterfly-shaped (papilionaceous), remaining with the fruit (persistent); stamens 10, 9 united together, the tenth free

LUCERNE,
PURPLE
MEDICK.
MEDICAGO
SATIVA.
CREEPING
REST
HARROW.
WILD
LIQUORICE.
BLACK MEDICK,
NONSUCH,
MEDICAGO
LUPULINA.
ONONIS
REPENS.
COMMON
YELLOW
MELILOT,
MELILOTUS OFFICINALIS.

(diadelphous); carpels 1. Fruit a pod, short, stalkless (sessile), enclosed in the calyx-tube, 1–4-seeded, often not opening by valves but decaying to free the seeds (indehiscent). Herbs with leaves divided to the base into 3 leaflets (palmately trifoliate), leaflets usually toothed, with the stipules adhering to the leaf-stalks.

Subterranean Clover. (**Trifolium subterraneum, Linn.**)—As just described. The flowers small, ½ inch long, stalkless (sessile), white or pale pink, generally 2 or 3 together, in shortly-stalked heads, erect in flower, but bending in fruit and burying themselves in the earth; the calyx shorter than the corolla, the teeth pointed and equal in length; each flower being surrounded by many undeveloped calices; the pods round, 1-seeded, generally ripening underground. The stems 6–18 inches long, hairy, creeping; the leaves divided to the base into 3 inversely heart-shaped (obcordate) leaflets, with broad, pointed stipules.

Uncommon. Dry, sandy places, chiefly in the south of England. May—June. Annual.

Common Red or Purple Clover. (**Trifolium pratense, Linn.**)—Flowers ¾ inch long, purplish-pink, rarely yellowish-white, sweet-scented, becoming brown when faded, in dense, roundish-oblong, stalkless (sessile) heads; the calyx-teeth long and bristle-like, 1 longer than the other 4; and the pods 1-seeded. [As described in the genus Trifolium.] The stems numerous, 2–18 inches long, prostrate; the leaves on long stalks, divided to the base into 3 broad, finely-toothed leaflets; and the stipules large, egg-shaped (ovate), ending in a long bristle. [*Plate* 34.

Very common; this is the ordinary field clover of cultivation. Fields, waste ground. May—July. Biennial.

Zigzag Clover. (**Trifolium medium, Linn.**)—A very similar species, with round heads of flowers of a brighter red, a taller, more slender, zigzag stem, narrower leaves, and lance-shaped stipules. This clover is sometimes cultivated for fodder.

Very common. Bushy places, roadsides, dry meadows. May—September. Perennial.

Sulphur-coloured Clover. (**Trifolium ochroleucon, Huds.**)—Another species similar to the Common Red Clover (Trifolium pratense), having cream-coloured flowers on stalked heads, the calyx half the length of the corolla, rather narrower leaflets, and lance-shaped stipules.

Rare, local. Eastern counties, on dry pastures. June—August. Perennial.

Teazel-headed Clover. (**Trifolium squamosum, Linn.**)—Flowers smaller than in the last 3 species, ⅜–½ inch long, pink, in roundish, shortly-stalked heads; the calyx ending in 5 shorter, rigid, pointed teeth (subulate), 1 longer than the others, increasing in size and becoming leafy in fruit. The stem 6–18 inches long, procumbent, and much branched; the leaflets oblong entire, and the stipules very long and narrow.

Rare. Salt marshes and meadows near salt water in the south of England and southern Ireland. June—July. Annual.

***Crimson Clover.** (**Trifolium incarnatum, Linn.**)—Not a native. A species much cultivated for fodder. Flowers ½ inch long, rich crimson, in close spike-like, stalked, cylindrical heads, 1–2 inches long; the calyx about as long as the corolla, with the teeth slender and pointed, nearly equal in length, softly hairy; the pods 1-seeded. The stem 6–18 inches high, slender, softly hairy, and the leaves divided to the base into 3 leaflets, which are inversely egg-shaped (obovate), with broad, blunt stipules.

Not common. An escape, found in England and Scotland, naturalised in Jersey. June—July. Annual.

Balbi's Clover. (**Trifolium Molinerii, Balb.**)—A similar variety, having pale yellow flowers.

Very rare, only found at the Lizard. June—July. Annual.

***Starry Clover.** (**Trifolium stellatum, Linn.**)—Not a native. The flower small,

flesh-coloured, in nearly round, long-stalked heads, ¾ inch across in flower, much larger in fruit: the calyx as long as the corolla, with the teeth pointed, nearly equal, hairy, erect in flower, becoming triangular and spreading in a star-like manner in fruit, the throat being completely closed with long woolly hairs; the pods 1-seeded. Stems 4–12 inches high; the leaves divided to the base into 3 broad leaflets, and the stipules broadly egg-shaped (ovate), shortly pointed, and often toothed.

Very rare. Naturalised at Shoreham, on the coast of Sussex. June—August. Annual.

Hare's-foot Clover. (Trifolium arvense, Linn.)—Flowers small, white becoming pink, in long, spike-like (cylindrical), stalked heads, about 1 inch long; the calyx longer than the corolla, with equal, russet-coloured, very slender, erect teeth, covered with soft hairs which almost hide the flowers; the pods 1-seeded. [As described in the genus Trifolium.] Stems 6–12 inches high, branched; the leaves divided to the base into 3 narrow leaflets, and the stipules narrow ending in a bristle. [*Plate* 34.

Common, locally. Sandy places near the sea, dry pastures, downs. July—September. Annual.

Soft-knotted Clover. (Trifolium striatum, Linn.)—Flowers small, ⅛ inch long, rose-coloured, in dense oval, stalkless (sessile) heads; the calyx a little shorter than the corolla, hairy, much dilated in fruit, with triangular, rigid teeth, 1 longer than the other 4; the pod small and 1-seeded. [As described in the genus Trifolium.] The stems 4–18 inches long, hairy; the leaves hairy, divided to the base into 3 inversely egg-shaped (obovate) leaflets, and the stipules egg-shaped (ovate), and ending in a fine point.

Fairly common. Dry pastures and waste places. June—July. Annual.

Boccone's Clover. (Trifolium Bocconi, Savi.)—A very similar species to the Soft-knotted Clover (Trifolium striatum), but with paler pink flowers, usually in pairs; the erect stems 2–4 inches high; and the leaves with narrower leaflets, and oblong pointed stipules.

Very rare. Only found near the Lizard. July—August. Annual.

Rigid Clover. (Trifolium scabrum, Linn.)—Another similar species to the Soft-knotted Clover (Trifolium striatum), but having inconspicuous whitish flowers, the calyx as long as the corolla, with triangular, spiny teeth, which spread and become rigidly spiny in fruit, the stems more prostrate, and the leaves with strong curved veins.

Not common. Sandy fields and dry places. May—July. Annual.

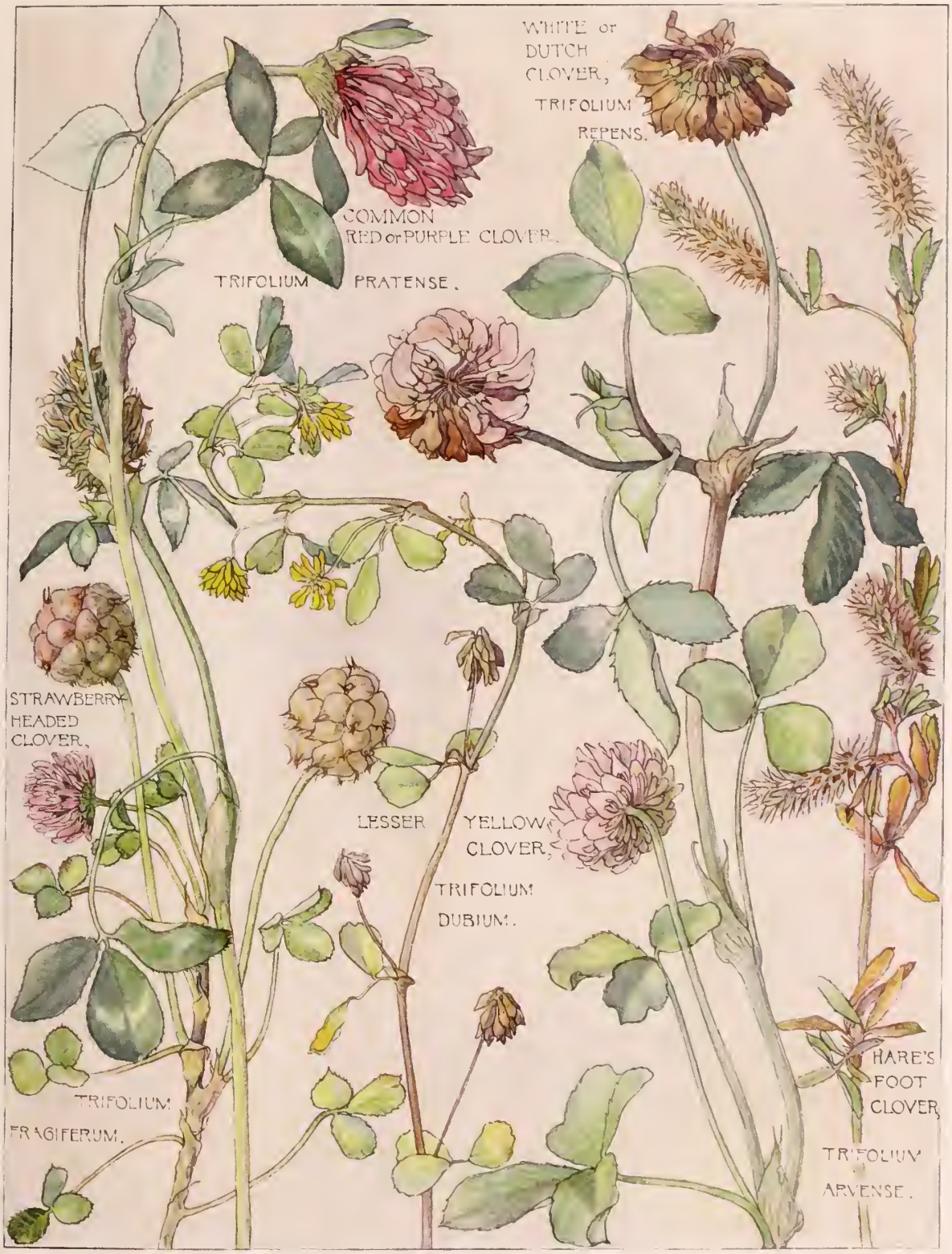
Smooth Round-headed Clover. (Trifolium glomeratum, Linn.)—Flowers ¼ inch long, bright pink, in dense, round, stalkless (sessile) heads; the calyx shorter than the corolla, with nearly equal teeth, pointed and becoming rigid and curved back in fruit; the pod 2-seeded. [As described in the genus Trifolium.] The stems 6–12 inches long, spreading, numerous; the leaves divided to the base into 3 inversely egg-shaped (obovate), toothed leaflets, with short, pointed stipules.

Rare. Sandy and gravelly places in the south and south-east. June—July. Annual.

Suffocated Clover. (Trifolium suffocatum, Linn.)—Flowers very small, ⅛ inch long, whitish, in dense, oval, stalkless (sessile) heads, the heads being crowded together along the stems, close to the ground; the calyx longer than the corolla, the teeth nearly equal, with fine points which curve back; the pod 2-seeded; the stems very short, 1–3 inches long, numerous, prostrate, often half buried in the sand; the leaves on long, slender stalks, divided to the base into 3 inversely egg-shaped (obovate) leaflets, with egg-shaped, abruptly-pointed stipules. The whole plant is hairless.

Rare. Sandy pastures near the sea in the south and east of England and in Wales. June—July. Annual.

Upright Round-headed Clover. (Trifolium strictum, Linn.)—Flowers very small,


WHITE or
DUTCH
CLOVER,
TRIFOLIUM
REPENS.
COMMON
RED or PURPLE CLOVER.
TRIFOLIUM PRATENSE.
STRAWBERRY
HEADED
CLOVER,
LESSER YELLOW
CLOVER,
TRIFOLIUM
DUBIUM.
HARE'S
FOOT
CLOVER,
TRIFOLIUM
FRAGIFERUM.
TRIFOLIUM
ARVENSE.

$\frac{1}{6}$ inch long, rose-colour, in round, stalked heads $\frac{1}{4}$–$\frac{1}{2}$ inch long; the calyx a little shorter than the corolla, with triangular, pointed, spiny teeth, the lower tooth being longer than the other 4; the pod a little longer than the calyx, 2-seeded. The stems 2–6 inches high, upright; and the leaves divided to the base into 3 narrowly lance-shaped, toothed leaflets, with egg-shaped (ovate), pointed stipules.

Very rare. On dry banks at the Lizard, in Anglesea, and the Channel Isles. June—July. Annual.

White or Dutch Clover. (Trifolium repens, Linn.)—Flowers $\frac{3}{8}$–$\frac{1}{2}$ inch long, white or white tinged with bright pink, when faded drooping and becoming brown, each flower on a short stalk, massed in roundish heads on long stalks; the calyx less than half the length of the corolla, with triangular, pointed teeth, the upper a little longer than the lower; the pod longer than the calyx, enveloped in the withered corolla, 2–4-seeded. [As described in the genus Trifolium.] The stems 3–18 inches long, creeping, rooting at the joints; the leaves on long stalks, divided to the base into 3 inversely egg- or heart-shaped, toothed leaflets, which often have a white band across them and a purplish spot; the stipules oblong and abruptly pointed. Smooth. This clover is generally accepted as the Shamrock of Ireland.

Very common. Meadows and pastures. May—September. Perennial. [*Plate* 34.

***Alsike Clover. (Trifolium hybridum, Linn.)**—Not a native. Very similar to the Dutch Clover (Trifolium repens), but with rather pinker flowers; the stems sometimes 2 feet high, never rooting at the joints, and with a few adpressed hairs.

Not common. In rich pastures, introduced from Alsike, Sweden. May—September. Perennial.

Strawberry-headed Clover. (Trifolium fragiferum, Linn.)—Flowers rather similar to the Dutch Clover (Trifolium repens), $\frac{1}{4}$ inch long, stalkless (sessile), pale rose-colour, in round long-stalked heads; the calyx downy, more than half the length of the corolla, with pointed, equal teeth, becoming when in fruit much inflated, thin, semi-transparent, and veined; the pod small, 1–2-seeded. The stem 6–12 inches long, creeping, rooting at the joints; the leaves on long stalks, divided to the base into 3 inversely egg-shaped, toothed leaflets, with oblong stipules, ending in a long point. [*Plate* 34.

Fairly common. Sandy commons, pastures. July—August. Perennial.

***Reversed Clover. (Trifolium resupinatum, Linn.)**—Not a native. Very similar to the last species, but with the flower heads on shorter stalks, and the corolla twisted round inside the calyx so that the standard is turned outwards instead of inwards as in all the other Clovers. Not a native. Appearing occasionally in some of the southern counties, and also in Lancashire. May—June. Annual.

Hop Clover. (Trifolium procumbens, Linn.)—Flowers $\frac{1}{8}$ inch long, lemon-yellow, in shortly stalked oval heads of 20–40 almost stalkless (sessile) flowers, which droop and fade to a pale yellow-brown; the calyx is shorter than the corolla, the teeth unequal, 2 shorter than the other 3; the pod a little longer than the calyx, the style not half the length of the pod, 1-seeded. [As described in the genus Trifolium.] The stems 6–18 inches long, slender, and wiry; the leaves shortly stalked, divided to the base into 3 inversely egg-shaped (obovate) leaflets, the middle one appearing to be shortly stalked (pinnately trifoliate). Stipules broad and pointed.

Very common. Fields, pastures, and waste places. June—August. Annual.

Trifolium agrarium, Linn., is occasionally found, but is not a native. It is very similar to the Hop Clover (Trifolium procumbens), but has larger flower heads, and the style nearly as long as the pod.

Lesser Yellow Clover. (**Trifolium dubium, Sibth.**)—Very similar to the Hop Clover (Trifolium procumbens), but altogether smaller, the flowers of a deeper yellow fading to dark brown, and only 4–20 in a longer-stalked head. [*Plate* 34.
Very common. Dry fields, pastures, and waste places. June—August. Annual.

Slender Yellow Clover. (**Trifolium filiforme, Linn.**)—A very similar species to the Lesser Yellow Clover (Trifolium dubium), but smaller, the flowers looser, 2–7 only, in shortly-stalked heads, and the leaves on shorter stalks, the centre one not stalked (palmately trifoliate).
Not common. Dry pastures, commons, waste places. June—July. Annual.

KIDNEY VETCH. (**ANTHYLLIS, LINN.**)—Flowers yellow, purple, or rose-colour, in crowded heads, with a bract deeply divided to the base directly beneath. Calyx inflated, 5-toothed; corolla butterfly-shaped (papilionaceous), of 5 petals equal in length; stamens 10, the filaments all united into a complete sheath (monodelphous); carpel 1. Pod short and small, concealed in the calyx, 1–2-seeded. Herbs or under-shrubs with leaves divided to the midrib into distinct leaflets (pinnate).

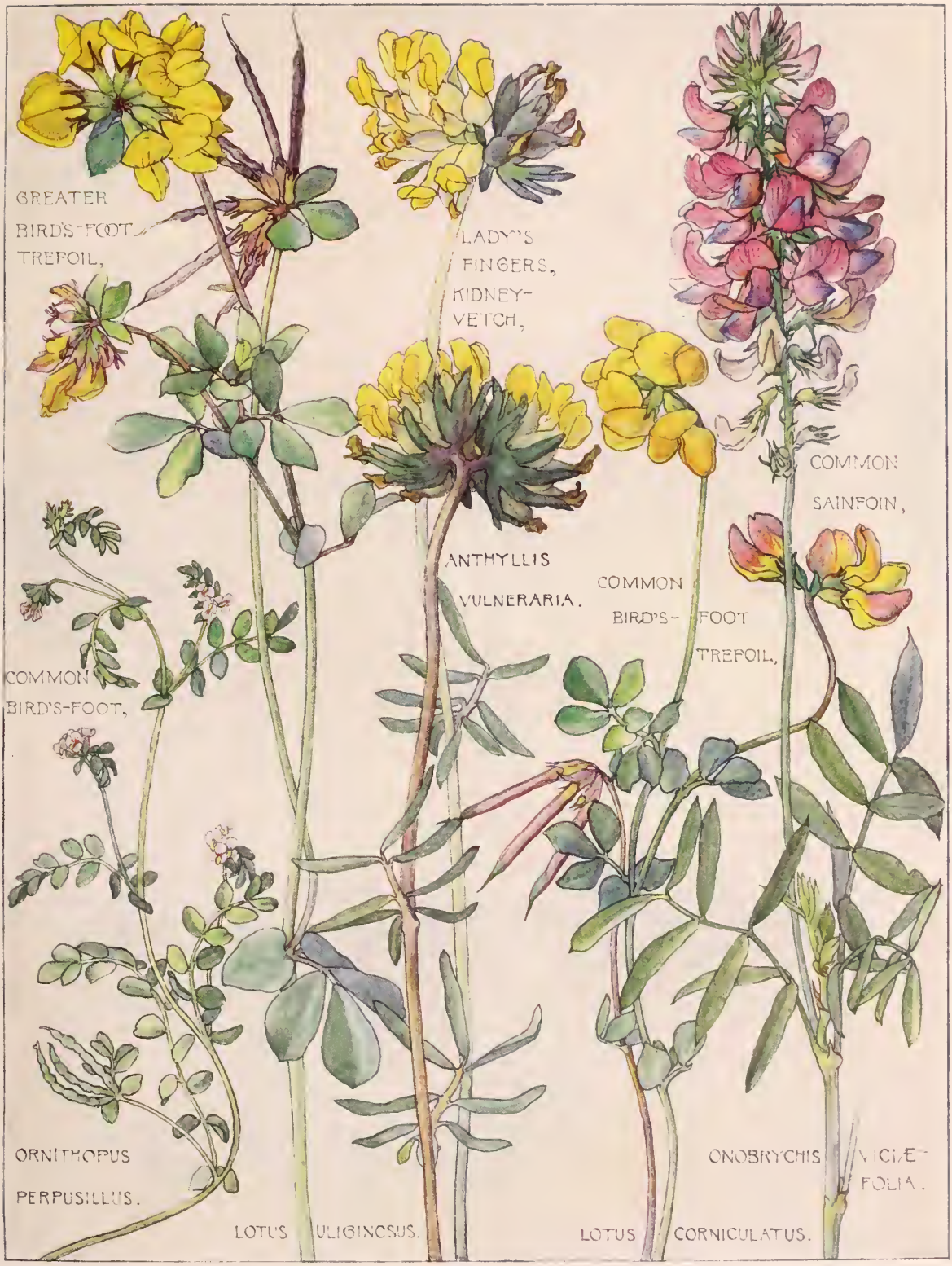
Lady's Fingers, Kidney Vetch. (**Anthyllis Vulneraria, Linn.**)—The only British species (as just described). The flowers $\frac{5}{8}$ inch long, yellow to red, stalkless (sessile), the flower-heads growing in pairs at the end of each stalk like the two lobes of a kidney, each head being surrounded by a deeply divided bract; the calyx very little shorter than the corolla, much inflated, hairy, yellowish; the stems 6–18 inches high, stiff; the leaves divided to the midrib into from 2–6 pairs of narrowly oval leaflets, and 1 terminal one (imparipinnate). [*Plate* 35.
Fairly common. Dry banks and pastures. June—August. Perennial.

BIRD'S-FOOT TREFOIL. (**LOTUS, LINN.**)—Flowers yellow or reddish, in clusters at the top of long stalks. Calyx much shorter than the corolla, bell-shaped, terminating in 5, narrow, nearly equal teeth; corolla of 5 petals, butterfly-shaped (papilionaceous); stamens 10, the filaments of 9 united together, the remaining 1 free (diadelphous); carpel 1. Fruit a long, tubular pod, many-seeded, longer than the calyx. Herbs or under-shrubs with leaves divided to the midrib into 5, rarely 4 leaflets (imparipinnate or pinnate), the lower pair taking the appearance and the place of stipules.

Common Bird's-foot Trefoil. (**Lotus corniculatus, Linn.**)—As just described. The flowers $\frac{5}{8}$–$\frac{3}{4}$ inch long, deep yellow, often tinged with crimson, shortly-stalked, 3–10 in a cluster (umbel) at the top of long stalks, with a deeply 3-lobed bract directly under the cluster; the calyx-teeth erect in bud, the two upper turning towards one another; the pods about 1 inch long, several together, spreading out like the claws of a bird. The stems 4–12 inches long; and the leaves on long stalks divided to the midrib into 2 pairs of egg-shaped (ovate), or inversely egg-shaped (obovate) leaflets, with 1 terminal one (imparipinnate). [*Plate* 35.
Very common. Meadows, pastures, heaths. June—August. Perennial.

Slender Bird's-foot Trefoil. (**Lotus tenuis, Waldst. & Kit.**)—A very similar plant, with smaller and fewer flowers, slender, thread-like, more-branched stems, and very narrow leaflets.
Rare. Damp clayey meadows and waste places. June—August. Perennial.

Greater Bird's-foot Trefoil. (**Lotus uliginosus, Schkuhr.**)—A similar plant to the Common Bird's-foot Trefoil (Lotus corniculatus), but larger. The flowers more numerous, 5–12 together on very long stalks, yellow, the calyx-teeth spreading like a star in bud; and the stems 1–3 feet high, tubular, and weak. [*Plate* 35.
Common. Moist meadows and bushy places. July—August. Perennial.


GREATER BIRD'S-FOOT TREFOIL,
LADY'S FINGERS, KIDNEY-VETCH,
COMMON SAINFOIN,
ANTHYLLIS VULNERARIA.
COMMON BIRD'S-FOOT TREFOIL,
COMMON BIRD'S-FOOT,
ORNITHOPUS PERPUSILLUS.
LOTUS ULIGINOSUS.
LOTUS CORNICULATUS.
ONOBRYCHIS VICIÆ-FOLIA.

Slender or Least Bird's-foot Trefoil. (Lotus angustissimus, Linn.)—Another similar plant, much smaller than the Common Bird's-foot Trefoil (Lotus corniculatus), with flowers about half the size, usually solitary, on shorter stalks, yellow; the calyx-teeth longer than the tube; the pods more slender; the stems slender, hairy, and more branched; and the leaves narrower.
Very rare. South of England, near the sea. June—August. Annual.

Hispid Bird's-foot Trefoil. (Lotus hispidus, Desf.)—A similar plant to the Least Bird's-foot Trefoil (Lotus angustissimus), but with 2–4 flowers together, shorter and thicker pods, and stouter stems.
Very rare. Near the sea in Cornwall and Devon. June—August. Annual.

MILK-VETCH. (ASTRAGALUS, LINN.)—Flowers clustered in spikes or heads, purple, blue, white, or yellow. Calyx bell-shaped or tubular, terminating in 5 equal teeth; corolla of 5 petals, butterfly-shaped (papilionaceous); stamens 10, 9 united into a sheath, the upper one free (diadelphous); carpel 1. Pod long, cylindrical or inflated, more or less divided lengthwise into 2 cells by a central partition proceeding from the opposite side to which the seeds are attached. Herbs or undershrubs with leaves divided to the midrib into numerous pairs of leaflets, usually with 1 terminal one (imparipinnate); with stipules.

Alpine Milk-Vetch. (Astragalus alpinus, Linn.)—As just described. The flowers $\frac{4}{5}$ inch long, few, drooping, white tinged with lilac, in short, close clusters (racemes), terminating long stalks; the calyx clothed with black hairs; the corolla three times as long as the calyx; the pod hanging (pendulous), covered with black hairs, imperfectly 2-celled. The stems 2–4 inches long, prostrate; the leaves 2–5 inches long, divided to the midrib into 8–10 pairs of leaflets, with one terminal one (imparipinnate), all oblong or egg-shaped (ovate); the stipules egg-shaped (ovate), not adhering to the leaf-stalk.
Very rare. Mountains in Perthshire, Aberdeenshire, and Forfarshire. July. Perennial.

Purple Milk-vetch. (Astragalus danicus, Retz.)—A similar plant with dense, oval heads of larger purple flowers, erect hairy pods, and stipules united at the base so as to form a sheath (connate).
Rare. Eastern counties of England and Scotland. June—July. Perennial.

Sweet Milk-vetch. (Astragalus glycyphyllos, Linn.)—A larger species, the flowers $\frac{1}{2}$ inch long, cream-coloured, numerous, in short, dense, oval clusters; the pods erect, curved, and smooth; the stems 2–3 feet long, zigzag, smooth, light green; the leaflets in 5–7 pairs, with 1 terminal one; and the stipules not united and not adhering to the leaf-stalk.
Not common. Principally in the south and east of England, more rare in Wales and Scotland; in woods, borders of fields, etc. June—July. Perennial.

OXYTROPIS. (OXYTROPIS, DC.)—Herbs only differing from the Milk-vetches in the keel of the corolla ending in an abrupt point; in the partition dividing the pod proceeding from the side to which the seeds are attached; and in the leaves always having a terminal leaflet (imparipinnate).

Purple or Hairy Mountain Oxytropis. (Oxytropis uralensis, DC.)—As just described. The flowers $\frac{3}{4}$ inch long, purple, in a compact, oval head, on a long stalk coming from the root (scape); the calyx hairy, half the length of the corolla; the keel of the corolla ending in a short, abrupt point; the pod erect, silky, nearly completely divided into 2 cells by a central partition. The whole plant stemless with a short, woody root-stock, bearing the old leaf-stalks and stipules; the leaves all from the root (radical), covered with silky hair, divided to

the midrib into from 9–15 pairs of oblong, hairy leaflets, with one terminal one (imparipinnate); and the stipules lance-shaped.

Rare, local. Mountain pastures in Scotland. June—July. Perennial.

Yellow Mountain Oxytropis. (Oxytropis campestris, DC.)—A very similar plant, but larger and less hairy, the flowers pale yellow tinged with purple, and the pod less completely 2-celled.

Very rare. Only found on the Clova Mountains. June—July. Perennial.

BIRD'S FOOT. (ORNITHOPUS, LINN.)—Flowers small, pink, white, or yellow, few, all starting from the same point on a long stalk (umbel). Calyx tubular, terminating in 5 equal teeth; corolla of 5 petals, butterfly-shaped (papilionaceous); stamens 10, 9 united, and the upper one free (diadelphous); carpel 1. Pod long, slender, slightly flattened, curved, breaking, when ripe, into numerous 1-seeded joints. Small annuals with leaves divided to the midrib into numerous pairs of distinct leaflets and 1 terminal one (imparipinnate), and with very small stipules.

Common Bird's-foot. (Ornithopus perpusillus, Linn.)—As just described. The flowers $\frac{1}{6}$ inch long, in 3–7-flowered clusters, with a leaf-like bract deeply divided to the midrib (pinnate) immediately beneath each cluster; the calyx hairy and the teeth short and triangular; the corolla with an orange keel, white wings, and standard veined with crimson; the pods $\frac{1}{2}$–$\frac{3}{4}$ inch long, flattened, and 5–9 jointed. The stems 6–12 inches long, hairy, prostrate, numerous; and the leaves divided to the midrib into 7–12 pairs of leaflets and one terminal one (imparipinnate), all oblong or oval. [*Plate* 35.

Fairly common. Sandy heaths, dry commons, and roadsides. May—July. Annual.

Sand Bird's-foot, or Joint-vetch. (Ornithopus ebracteatus, Brot.)—A species with larger, yellower flowers, without a bract; and rounder pods, curving upwards into a bow and ending in a claw. The whole plant hairless.

Very rare. Scilly and the Channel Isles. July—August. Annual.

HORSESHOE VETCH. (HIPPOCREPIS, LINN.)—Flowers yellow, in long-stalked clusters, each cluster consisting of a number of shortly-stalked flowers all starting from the same point on the main flowering stem (umbels). Calyx bell-shaped, with 5 equal teeth; corolla of 5 petals, butterfly-shaped (papilionaceous), long-clawed; stamens 10, 9 united, the upper one free (diadelphous); carpel 1. Pods long, flattened, composed of from 3–6 1-seeded horseshoe-shaped joints. Herbs or undershrubs with leaves divided to the midrib into numerous pairs of leaflets, with 1 terminal one (imparipinnate).

Tufted Horseshoe-vetch. (Hippocrepis comosa, Linn.)—The only British species (as just described). The flowers $\frac{3}{8}$–$\frac{1}{2}$ inch long, pale yellow, 5–10 in a cluster (umbels), easily mistaken for the Common Bird's-foot Trefoil (Lotus corniculatus) until the pods and leaves are examined. The pods about 1 inch long ending in a fine point, and consisting of a series of crescent- or horseshoe-shaped, 1-seeded joints. The stems 6–18 inches long, numerous, prostrate, much branched; and the leaves divided to the midrib into 4–7 pairs of oblong, inversely egg-shaped (obovate) or narrow leaflets, with 1 terminal one (imparipinnate).

Not common, local. Chalky banks in the south of England. May—August. Perennial.

SAINFOIN. (ONOBRYCHIS, LINN.)—Flowers red or white in showy, long-stalked spikes. Calyx bell-shaped, with 5 long, pointed, equal teeth; corolla of 5 petals, butterfly-shaped (papilionaceous); stamens 10, 9 united, and the upper one free (diadelphous); carpel 1. Pod short,

COMMON VETCH.
VICIA
SATIVA.
TUFTED
VETCH.
VICIA
CRACCA.
NARROW-
LEAVED
VETCH.
VICIA
ANGUSTIFOLIA.
HAIRY
TARE.
VICIA
HIRSUTA.

roundish, and flattened, spiny or with raised dots (tubercles), and a network of veins, 1-seeded, not opening by valves but decaying to free the seed. Herbs or undershrubs with leaves divided to the midrib into numerous pairs of leaflets and one terminal one (imparipinnate).

Common Sainfoin. (**Onobrychis viciæfolia, Scop.**)—The only British species (as just described). The flowers ½ inch long, rose-coloured, veined with darker rose, in compact spikes, on long stalks; the small pod semicircular, covered with raised veins, spiny along its curved edge, downy, flattened; the stems 1–2 feet high, erect; the leaves divided to the midrib into 8–12 pairs of oblong, pointed leaflets, with one terminal one (imparipinnate), and the stipules broadly lance-shaped. [*Plate* 35.

Local. On chalky banks and borders in the south-east of England. Often cultivated for fodder. June—August. Perennial.

VETCH. (**VICIA, LINN.**)—Flowers, of various colours, 1, 2, or many, in clusters, terminating long stalks (peduncles). Calyx tubular, terminating in 5 teeth, which are nearly equal, or the 2 upper ones shorter; corolla of 5 petals, butterfly-shaped (papilionaceous), with the standard spreading; stamens 10, 9 united, the upper one usually quite free (diadelphous); carpel 1, the style thread-like, with a tuft or ring of hairs below the stigma. Pods long, slightly flattened, and many-seeded. Herbs, often climbing by means of tendrils terminating the leaves, which are divided to the midrib into numerous pairs of leaflets (pinnate). Stipules generally half arrow-shaped.

Hairy Tare. (**Vicia hirsuta, Gray.**)—As just described. Flowers small, ⅕ inch long, whitish tinged with mauve, 2–6 in short-stalked clusters (racemes); the calyx half as long as the corolla, the pods short, stalkless, hairy, oblong, and flattened, ending in a short beak, 2-seeded. The stems 1–2 feet long, slender, weak, hairy, forming tangled masses; the leaves divided to the midrib into 6–10 pairs of narrow, oblong leaflets (pinnate), and ending in a branched tendril. [*Plate* 36.

Common. Fields, hedges, waysides. June—August. Annual.

Smooth Tare. (**Vicia gemella, Crantz.**)—A similar plant, with only 1 or 2 flowers, shortly-stalked hairless pods with 4 seeds, and fewer leaflets.

Not uncommon. Fields, hedges, waysides. June—August. Annual.

Slender Tare. (**Vicia gracilis, Loisel.**)—A very similar plant to the last, but with flowers twice as large, more numerous, and of a deeper lilac; pods longer, and 5–8-seeded; stems stouter, and fewer, and more pointed leaflets.

Not common. Cornfields and waste places in the south of England. June—August. Annual.

Tufted Vetch. (**Vicia Cracca, Linn.**)—Flowers many, ½ inch long, blue shading to mauve and purple, 10–30 in. long, one-sided, compact, long-stalked clusters (racemes); the calyx only ⅓ as long as the corolla, the teeth very unequal; the style with a ring of hairs below the stigma; the pods, without hairs, flattened, about an inch long, 6–8-seeded. [As described in the genus Vicia.] Stem 18 inches to 6 feet long, climbing, weak, with prominent ridges; the leaves divided to the midrib into 8–12 pairs of narrow, oblong, pointed, silky leaflets (pinnate), and ending in a branched tendril, by which the plant climbs; and the stipules half arrow-shaped. [*Plate* 36.

Common. Hedges, bushy and waste places. June—August. Perennial.

Bitter Vetch. (**Vicia Orobus, DC.**)—A somewhat similar species, with larger flowers, ⅝ inch long, white tinged with purple, 6–20 in loose, 1-sided, long-stalked clusters (racemes); the pod flattened, about 1 inch long, with 3–4 or rarely more seeds; the stem 1–2 feet high, much branched, and more erect; the leaves hairy, divided to the midrib into 6–14 pairs of oval or

oblong, pointed leaflets (pinnate), and ending in a short straight point, and no tendrils; the half-arrow-shaped stipules broad and slightly toothed.
Rare. Mountain pastures, thickets, and woods, mostly in Wales and the North. May—June. Perennial.

Wood Vetch. (Vicia sylvatica, Linn.)—Another similar species to the Tufted Vetch (Vicia Cracca), with larger flowers, ¾ inch long, white tinged with lilac, 6–18 in loose, 1-sided long-stalked clusters (racemes); the pod 1 inch long, broad, ending in a long point, 4–6-seeded; the stems 2–4 feet long, climbing; the leaves divided to the midrib into 6–10 pairs of oval, abruptly-pointed (mucronate) leaflets, and ending in a branched tendril; the stipules crescent-shaped, and deeply toothed at the base.
Not common. Mountains, woods, and thickets. June—August. Perennial.

Bush Vetch. (Vicia sepium, Linn.)—Flowers few, ½–¾ inch long, pale purple, 2–6 in short, one-sided, very shortly-stalked clusters (racemes); the calyx hairy, half as long as the standard petal, teeth unequal, the 3 lower longer and pointed, the 2 upper shorter and pointing upwards; the style with a tuft of hairs on the outer side under the stigma; pod long, without hairs (glabrous), oblong, pointed, slightly flattened, seeds few. [As described in the genus Vicia.] Stem 1–2 feet high, weak, climbing or trailing; the leaves divided to the midrib into 5–8 pairs of oval or egg-shaped (ovate) leaflets, abruptly pointed (mucronate), and terminating in a branched tendril. [*Plate* 37.
Common. Hedges, woods, waysides. May—August. Perennial.

***Common Vetch. (Vicia sativa, Linn.)**—Not a native, but a common escape, as it is largely cultivated for fodder. Flowers 1 inch long, with a lilac standard and deep purple wings, solitary or in pairs, stalkless (sessile); the calyx hairy with 5 equal teeth; the pods without hairs (glabrous), 1–2 inches long, narrow, with many seeds. [As described in the genus Vicia.] Stem 2–3 feet high, nearly erect or climbing; the leaves divided to the midrib into 4–7 pairs of oval, abruptly pointed (mucronate) leaflets, and terminating in a branched tendril; the stipules half arrow-shaped, toothed at the base, usually with a dark mark in the centre. [*Plate* 36.
A common escape. Margins of fields. April—June. Annual.

Narrow-leaved Vetch. (Vicia angustifolia, Linn.)—A very similar species, but more slender, having very narrow leaflets, red flowers, and shorter pods. A true native. [*Plate* 36.
Not common. Dry places, hedges, and waysides. May—June. Annual.

Rough Podded Yellow Vetch. (Vicia lutea, Linn.)—A very similar species to the Common Vetch (Vicia sativa), with flowers ¾–1 inch long, narrow, pale yellow, solitary, stalkless (sessile), in the axils of the leaves; the pods broad, terminating in a beak, black when ripe, covered with long hairs; the stem shorter and prostrate; and the leaves terminating in a single or branched tendril or in a short point; the whole plant slightly hairy.
Very rare, local. Stony banks and shingly sea-beaches in the south of England. June—August. Annual.

***Smooth-podded Vetch. (Vicia lævigata, Sm.)**—A species very similar to the Rough-podded Yellow Vetch (Vicia lutea), differing in having pale blue or whitish flowers, and in being altogether smaller and without hairs.
Very rare. Formerly found at Weymouth on the seashore. June—August. Perennial.

***Hairy Flowered Vetch. (Vicia hybrida, Linn.)**—Another species very similar to the Rough-podded Yellow Vetch (Vicia lutea), but with the large yellow flowers frequently veined with purple, and the standard always hairy, the stems stouter, and the leaflets broader.
Very rare. Formerly found in Somerset. June—August. Annual.

NARROW LEAVED EVERLASTING PEA.
YELLOW VETCHLING,
LATHYRUS PRATENSIS.
LATHYRUS SYLVESTRIS
CRIMSON or GRASS-LEAVED VETCHLING,
LATHYRUS NISSOLIA.
TUBEROUS BITTER-VETCH,
LATHYRUS MONTANUS.

Spring Vetch. (**Vicia lathyroides, Linn.**)—Flowers small, $\frac{1}{4}$–$\frac{3}{8}$ inch long, pale purple, solitary, stalkless (sessile); the calyx with 5 equal teeth, and the pods smooth (glabrous) and flattened, about 1 inch long. [As described in the genus Vicia.] Stems 6 inches long, spreading and prostrate; the leaves divided to the midrib into 2–4 pairs of oblong leaflets, and ending in a straight point or a short simple tendril; the stipules half arrow-shaped.

Not common. Sandy commons and waste places. April—June. Annual.

Rough-podded Purple Vetch. (**Vicia bithynica, Linn.**)—Flowers $\frac{3}{4}$ inch long, purple with paler wing petals, 1–2 or even 3 in a short-stalked cluster; the calyx hairy, with unequal teeth, the upper pair shorter than the other 3. [As described in the genus Vicia.] Pods long and hairy; stems 6 inches to 2 feet long, never winged; the leaves divided to the midrib into 2–3 pairs of leaflets, which graduate from inversely egg-shaped (obovate) in the lowest to narrowly lance-shaped in the upper ones, and ending in a branched tendril; the stipules large, half arrow-shaped.

Rare. Grassy and bushy places near the sea. May—August. Perennial.

VETCHLING, EVERLASTING PEA, BITTER-VETCH. (**LATHYRUS, LINN.**)—Flowers purple, red, white, or yellow, solitary or in clusters, terminating in long flower-stalks (peduncles). Calyx bell-shaped, terminating in 5 teeth, of which the upper 2 are shorter; petals 5, butterfly-shaped (papilionaceous), broad, especially the standard; stamens 10, 9 united, the upper one free or half free (diadelphous); carpel 1, with the style flattened at the base, hairy on the upper or inner side; pods long, flattened, many-seeded. Herbs very similar to the Vetches, differing in the broader petals, the style, and the fewer and longer leaflets.

Yellow Vetchling. (**Lathyrus Aphaca, Linn.**)—As just described. The flowers $\frac{1}{2}$ inch long, yellow, 1, or rarely 2 together, on a long slender stalk (peduncle); the calyx nearly as long as the petals, with 5 long, lance-shaped, nearly equal teeth; the pods long, narrow, and straight, with few seeds; the stem 8 inches to 3 feet long, angular, weak, climbing; leaflets none, their place being supplied by a pair of very large heart- or arrow-shaped stipules at the base of each tendril.

Rare. Cultivated and waste ground in the south. June—July. Annual.

Crimson or Grass-leaved Vetchling. (**Lathyrus Nissolia, Linn.**)—Flower $\frac{1}{2}$–$\frac{5}{8}$ inch long, bright rose-colour, solitary or rarely 2 together, on long stalks (peduncles); the calyx one-third as long as the corolla; the pods narrowly oblong, straight, smooth (glabrous). [As described in the genus Lathyrus.] Stems 1–2 feet high, erect and angular; the leaves reduced to a long, flattened, grass-like leaf-stalk (petiole), without tendrils or stipules. [*Plate* 37.

Rare. Bushy places and grassy borders of fields. May—June. Annual.

Rough-podded Vetchling. (**Lathyrus hirsutus, Linn.**)—Flowers $\frac{1}{2}$ inch long, with a bright crimson standard and paler wings and keel, 1 or 2 on a long stalk (peduncle); the calyx half the length of the corolla; the pods oblong, flattened, straight, hairy. [As described in the genus Lathyrus.] Stems 1–4 feet, weak, climbing, winged; the leaves divided to the midrib into a single pair of long, narrow leaflets, terminating in a branched tendril; the stipules small and half arrow-shaped.

Very rare. Occasionally found in cornfields in Essex, Kent, and one or two other counties. June—July. Annual.

Meadow Vetchling. (**Lathyrus pratensis, Linn.**)—Flowers $\frac{5}{8}$–$\frac{3}{4}$ inch long, bright yellow, 3–12 in a cluster, terminating a long stalk (peduncle); the calyx not half the length of the corolla; the pods narrowly oblong, flattened, hairy when young; stems 1–3 feet long, angled, straggling or climbing; the leaves divided to the midrib into a single pair of lance-shaped,

pointed leaflets, and terminating in a simple or branched tendril; the stipules large and arrow-shaped. [*Plate* 37.

Common. Meadows, pastures, waysides. June—September. Perennial.

Earth-nut Pea. (Lathyrus tuberosus, Linn.)—A somewhat similar species to the Meadow Vetchling (Lathyrus pratensis), but having clusters of 2–5 bright crimson flowers; the long pods not flattened, nearly round and smooth (glabrous); the single pair of leaflets broad, inversely egg-shaped (obovate); the whole leaf terminating in a branched tendril; the stipules half arrow-shaped; and the root-stock creeping, and having oval tubers.

Very rare. Only found in cornfields in Essex. June—August. Perennial.

Narrow-leaved Everlasting Pea. (Lathyrus sylvestris, Linn.)—Flowers large, ¾–1 inch long, with a rose-coloured standard and greenish-yellow wings tinged with purple, 3–10 in a cluster on a long stalk (peduncle); the pods long, oblong, compressed, with many seeds. [As described in the genus Lathyrus.] Stems 3–6 feet long, climbing, winged; the leaves divided to the midrib into a single pair of oval leaflets; the leaf-stalk (petiole) broadly-winged and terminating in a much-branched tendril; the stipules narrow and half arrow-shaped. [*Plate* 37.

Rare. Woods, thickets, rocky places. June—September. Perennial.

***Broad-leaved Everlasting Pea. (Lathyrus latifolius, Linn.)**—Not a native, an escape from gardens, where it is much cultivated. A very similar species to the Narrow-leaved Everlasting Pea (Lathyrus sylvestris), but with larger pink flowers and broader leaves.

Rare; not native. Near gardens. June—July. Perennial.

Blue Marsh Vetchling. (Lathyrus palustris, Linn.)—Flowers ⅝–¾ inch long, bluish-purple, 2–8 in a cluster on a long stalk (peduncle); the pods oblong, flattened, and smooth (glabrous). [As described in the genus Lathyrus.] Stems 2–4 feet long, climbing, winged; the leaves divided to the midrib into 2–4 pairs of narrow, lance-shaped leaflets, and ending in a short, usually branched tendril; the stipules half arrow-shaped.

Rare. Fens and boggy meadows. June—August. Perennial.

Seaside Everlasting Pea. (Lathyrus maritimus, Bigel.)—Flowers large, ⅝–⅞ inch long, purple-crimson, fading to crimson, 4–10 in a compact cluster on a short stalk; the pods narrowly oblong. [As described in the genus Lathyrus.] Stems 6 inches to 3 feet long, prostrate, sharply 4-angled; the leaves divided to the midrib into 3–5 pairs of broadly oval leaflets, and ending in a short simple or branched tendril; stipules broad and leaf-like, with arrow-shaped bases.

Very rare. Shingly sea-beaches on the southern and eastern coasts. June—August. Perennial.

Tuberous Bitter Vetch. (Lathyrus montanus, Bernh.)—Flowers ½–¾ inch long, purple, variegated, fading to green or blue, 2–6 in a cluster on a long stalk (peduncle); the pods long, oblong, black when ripe. [As described in the genus Lathyrus.] Stems 8–18 inches high, erect, narrowly-winged, smooth (glabrous); the leaves divided to the midrib into 2, sometimes 3 or 4, pairs of oblong leaflets, and ending in a fine point or even a small narrow leaflet; the stipules half arrow-shaped; and the root-stock forming small tubers. [*Plate* 37.

Common. Woods, thickets, grassy places. May—July. Perennial.

Black Bitter Vetch. (Lathyrus niger, Wimm.)—A similar species to the last, the flowers ½ inch long, purplish-crimson fading to blue, 3–8 in a cluster on a long stalk (peduncle); the pods long, narrow, roundish, black when ripe; the stems 1–2 feet high, erect, wiry, angular; the leaves divided to the midrib into 4–6 pairs of broad leaflets, and ending in a short point; the stipules small and narrow.

Very rare. Rocky copses in Scotland in Perthshire and near Forfar. June—July. Perennial.

THE ROSE FAMILY

[ORDER XXVI. ROSACEÆ]

THE flowers of the Rose Family, like so many members of the Buttercup Order, have 5 sepals and petals and numerous stamens, but the sepals are always united at the base into a little cup or tube which generally adheres to the seedcase, and the stamens are always inserted at the top of this cup or tube and so arise from around the seedcase and not from below it. The fruit is very varied, though occasionally resembling that of the Buttercup tribe.

It is a large family and is to be found all over the world, but it is best represented in the temperate and cooler zones. Some of our loveliest garden flowers and shrubs belong to it—our Roses, Spiræas, Potentillas and Geums, our Hawthorns, Cotoneasters, Japanese pear (Pyrus japonica), Common and Portugal Laurel, and many others. But it is for its fruits that the Rose Family is best known and valued. The genus Prunus provides us with Plums, Cherries, Apricots, Peaches, Nectarines, and Almonds; the Raspberry and Blackberry belong to the genus Rubus; the Apples, Pears, and Medlar to the genus Pyrus; and the Quince to the genus Clydonia.

The various members of the genus Prunus contain more or less of the deadly poison prussic acid, which is found in the seeds or kernels of the plums, cherries, apricots, etc., and in the leaves of the Common Laurel which contain so much of the poison as to render the shrub dangerous; its crushed leaves are used for killing butterflies and moths, and sheep straying and cropping the leaves frequently die.

The well-known Rose-water and Attar of Roses are distilled from certain species of the Rose.

HAWTHORN. (CRATÆGUS, LINN.)—Flowers white or pink, in flat clusters (corymbs). Sepals 5, united into a fleshy tube which adheres to the seedcase, and separating into 5 short teeth; petals 5, not united (free), inserted in the throat of the calyx-tube; stamens numerous, inserted with the petals; carpels 1–5, united into a 1–5-celled seedcase (ovary), which adheres to the fleshy calyx-tube, and separating into the same number of styles. The fruit a roundish, pulpy pome, crowned with the faded calyx-teeth, containing 1–5 hard, bony, stone-like cells, each containing 1 seed. Small spiny trees or shrubs with undivided (simple) leaves which are often lobed.

Hawthorn, May, Whitethorn. (Cratægus Oxyacantha, Linn.)—The only British species (as just described). The flowers ¾ inch across, sweet-scented, white, numerous, in dense clusters (corymbs); the styles 1, 2, or 3; the fruit roundish, crimson, crowned with the calyx-teeth, and containing 1, 2, or 3 hard, 1-seeded stones. A shrub or small tree 10–20 feet high, with stiff, prickly branches, and leaves deeply lobed towards the midrib into 3–5 lobes (pinnatifid). [*Plate* 38. Very common. Hedges, woods, heaths. May—June. Tree or shrub.

COTONEASTER, MEDIC.—Flowers small, white or pink, solitary on short stalks (peduncles), or 4–5 together in short, drooping clusters (racemes). Sepals 5, united into a tube and separating into 5 teeth; petals 5, inserted in the throat of the calyx-tube. Stamens numerous, inserted within the petals; carpels 2–5, adhering to the calyx-tube, but not united together, and separating into the same number of styles tipped with the stigmas. Fruit, a pulpy berry, with a bony core (pome), and the same number of free cells as styles, each containing 1 bony stone which contains 1 seed. Shrubs or small trees with undivided (simple), entire, alternate leaves, woolly underneath.

Cotoneaster integerrimus, Medic.—The only British species (as just described). Flowers very small, $\frac{1}{6}$ inch across, pink, solitary or in pairs, drooping; the fruit a small, round, shiny, red berry. A small shrub, 1–2 feet high, with undivided (simple), roundish leaves which are woolly underneath, and minute reddish bracts.

Very rare. Limestone cliffs on the Great Orme's Head. May—June. Shrub.

PLUM, CHERRY, &c. (PRUNUS, LINN.)—Flowers numerous and showy, in small clusters (racemes), white or pink. Sepals 5, united into a tube, and separating into 5 teeth; petals 5, spreading, inserted in the throat of the calyx-tube; stamens numerous, inserted with the petals; carpel 1. Fruit a drupe, consisting of a fleshy, juicy exterior, and an inner hard stone, smooth or rugged, but not wrinkled, which contains 1 or rarely 2 seeds. Trees or shrubs with undivided (simple), alternate, toothed (serrate) leaves and small stipules.

Blackthorn, or Sloe. (Prunus spinosa, Linn.)—Flowers usually produced before the leaves, $\frac{1}{2}$–$\frac{5}{8}$ inch across, nearly stalkless (sessile), white, solitary or in pairs, closely massed up the branches. Sepals 5, united into a tube, with 5 broad, triangular teeth; petals 5, oval, very shortly clawed; stamens numerous, with reddish anthers; carpel 1. Fruit a "plum" (drupe), round, small, erect, black with a bluish bloom, and with an acrid juice, containing 1 seed. A rigid, much-branched shrub, 3–10 feet high, the branches black and spiny; the leaves undivided egg-shaped (ovate) or oblong, finely toothed, shiny above and downy underneath. The Sloe is considered to be the origin of all our varieties of garden Plums. [*Plate* 39.

Very common. Thickets, woods, commons, hedges. March—April. Shrub.

Bullace. (Prunus insititia, Huds.)—A very similar shrub, with larger flowers, appearing with the leaves; larger fruit, drooping, bluish-black, rarely yellow, less acrid; taller, with brown bark and few spines.

Not uncommon. Hedges and woods. April—May. Shrub.

***Wild Plum. (Prunus domestica, Linn.)**—Not a native. A very similar tree to the last, differing in its oblong sweet fruit, branches without spines, and leaves only downy on the under part of the veins.

Uncommon, not a native. Hedges. April—May. Tree.

Wild Cherry, Gean. (Prunus Avium, Linn.)—Flowers $\frac{3}{4}$ inch or more across, white drooping, in clusters of 3–5 on stalks 1$\frac{1}{2}$–2 inches long, all starting from the same point on the main flowering stalk (umbel). Calyx-teeth turned back; petals deeply notched, cup-shaped, falling quickly (fugacious). [As described in the genus Prunus.] Fruit a "cherry," a polished drupe, red or black, sweet or bitter, with a nearly round, smooth stone. A tree 10–30 feet high, without suckers, with smooth, greyish bark. Leaves 2–4 inches long, oval, sharply toothed, drooping, downy underneath, becoming a glorious red in the autumn.

Not uncommon. Woods and hedges. May—June. Tree.

Dwarf or Red Cherry. (Prunus Cerasus, Linn.)—Very similar to the Wild Cherry,

THE ROSE FAMILY. (ORDER XXVI. ROSACEÆ.)

CALYX of 5, rarely 4 SEPALS, united at the base into a tube, which often adheres to the seedcase (ovary), and separating into the same number of teeth; sometimes with an outer row of the same number of sepal-like bracts (epicalyx).

COROLLA of 5 or 4 PETALS, rarely none, inserted on the throat of the calyx-tube (perigynous).

STAMENS numerous, inserted within the petals on the throat of the calyx-tube (perigynous).

PISTIL of 1, 2, or more CARPELS, united or free, the seedcase (ovary) sometimes adhering to the calyx-tube, the styles usually not united, each crowned with a pin-head-like stigma.

FRUIT various, consisting of a drupe (as in the Plum etc.), a number of small drupes (as in the Blackberry or Raspberry), a pome (as in the Apple), a number of achenes (as in the Potentillas, Avens, Strawberry), or a number of follicles (as in the Meadowsweet).

FLOWERS conspicuous, yellow, white or pink, often in clusters (racemes, spikes etc.), sometimes solitary.

LEAVES alternate, simple or divided (compound), toothed, usually with stipules.

DISTINGUISHED BY the 5 sepals, the 5 petals and numerous stamens inserted together on the throat of the calyx-tube (perigynous), the usually divided leaves, and the leaf-stalks generally with stipules which are frequently conspicuous.

HAWTHORN.
MAY.
WHITETHORN.

CRATÆGUS

OXYACANTHA

differing in having rather larger and more open flowers, with less notched petals; the fruit red and acid; and the leaves more unevenly toothed, erect, and smooth (glabrous); and in being only 6–8 feet high, bushy, with numerous suckers.

Rare, local. Hedges and thickets, more common in the south of England. May—June. Shrub.

Bird Cherry. (Prunus Padus, Linn.)—Flowers $\frac{5}{8}$ inch across, white, numerous, on short stalks, in long, often drooping clusters. [As described in the genus Prunus.] Fruit a drupe, small, nearly round, black and bitter, with a rough stone. A small tree or shrub 6–20 feet high, with leaves egg-shaped (ovate), narrow, pointed, slightly heart-shaped (cordate) at the base.

Rare. Woods and thickets. May—June. Shrub.

PEAR, APPLE, SERVICE, ROWAN, &c. (PYRUS, LINN.)—Flowers white or rose-coloured, in flat terminal clusters (corymbose cymes). Sepals 5, united into a fleshy, urn-shaped (urceolate) tube, adhering to the seedcase (ovary), and separating into 5 short teeth which remain with the fruit (persistent); petals 5, inserted in the throat of the calyx-tube; stamens numerous, inserted with the petals; carpels 2–5, with the seedcases (ovaries) embedded in the calyx-tube, through the mouth of which appear the styles and stigmas. The fruit formed with the calyx-tube, an oval or roundish fleshy mass (a pome), crowned with the faded calyx-teeth, and divided in the centre by the 2–5 brittle, horny, 1–2-seeded seedcases. Trees or shrubs with leaves undivided (simple), or divided to the midrib into distinct leaflets (pinnate).

Wild Service Tree. (Pyrus torminalis, Ehrh.)—Flowers $\frac{1}{2}$ inch across, white, in branched, flat clusters (corymbs). Sepals 5, united into a tube with 5 short, broad teeth; petals 5, white; stamens numerous; styles generally 2. Fruit a small, roundish, 2-celled berry, green spotted with brown, each cell containing 1 seed. A tree 10–90 feet high, with downy shoots, and broad leaves deeply lobed into 5–9 toothed segments.

Rare. Woods and hedges in the south of England. April—May. Tree.

White Beam. (Pyrus Aria, Ehrh.)—Flowers about $\frac{1}{2}$ inch across, white, in branched flat clusters (corymbs). Sepals 5, united into a tube and separating into 5 teeth; petals 5, white; stamens numerous; styles generally 2. Fruit a small, roundish, 2-celled, red berry, with 1 or 2 seeds in each cell. A small tree 10–20 feet high, sometimes hardly more than a shrub, with roundish or oval leaves, more or less deeply lobed and toothed, the under side being covered with a thick, white down.

Common in the south of England on chalky banks and woods. May—June. Tree.

According to the lobes of the leaves the White Beam is sometimes divided into the following species: **Pyrus rotundifolia, Bechst., Pyrus minima, Ley., Pyrus intermedia, Ehrh., Pyrus pinnatifida, Ehrh.**

Mountain Ash, Rowan Tree. (Pyrus Aucuparia, Ehrh.)—Flowers $\frac{2}{5}$ inch across, white, in branched, flat, many-flowered clusters (corymbs). Sepals 5; petals 5, white; stamens numerous; styles usually 3. Fruit a small, round, 2–4-celled scarlet berry. A tree 10–30 feet high, with the leaves divided to the midrib into 6–8 pairs of oblong, toothed leaflets, and 1 terminal one (imparipinnate).

Very common. Woods and hilly districts. May—June. Tree.

***Service Tree. (Pyrus domestica, Ehrh.)**—Not a native. A very similar species to the Mountain Ash (Pyrus Aucuparia), but with larger flowers, and a small pear-shaped fruit.

Not a native. A single tree has been found in Wyre Forest. May. Perennial.

Wild Pear. (Pyrus communis, Linn.)—Flowers 1–$1\frac{1}{4}$ inches across, few, pure white, in

clusters (corymbs). Sepals 5, woolly; petals 5; stamens numerous, red; styles 5, free. Fruit a "pear," 1–2 inches long, green, fleshy, round, tapering at the base, with 5 horny cells in the centre, which do not develop seeds when wild in the British Isles. A fruit so well known as to have given its name to any similar shape. A shrub or tree, 8–40 feet high, with some of the branches often armed with spines; the leaves undivided (simple), egg-shaped or oval, toothed (serrate). Rare. Hedges, woods and thickets. April—May. Tree.

Lesser Pear (Pyrus cordata, Desv.), a small bushy species, with rounder fruit and heart-shaped (cordate) leaves, is found near Plymouth.

Crab Apple. (Pyrus Malus, Linn.)—Flowers 1½ inches across, white inside, pink outside, in clusters (umbels). Sepals 5, woolly; petals 5; stamens numerous; styles 5, united at the base. Fruit an "apple," round, fleshy, hollowed where the stalk is inserted, yellow to red, very acid, with 5 horny brittle cells in the centre, 1–2-seeded. A small tree, with the leaves undivided (simple), egg-shaped or oval, toothed (serrate). [*Plate* 39.
The origin of our many varieties of garden apple.
Common. Hedges and woods. May. Tree.

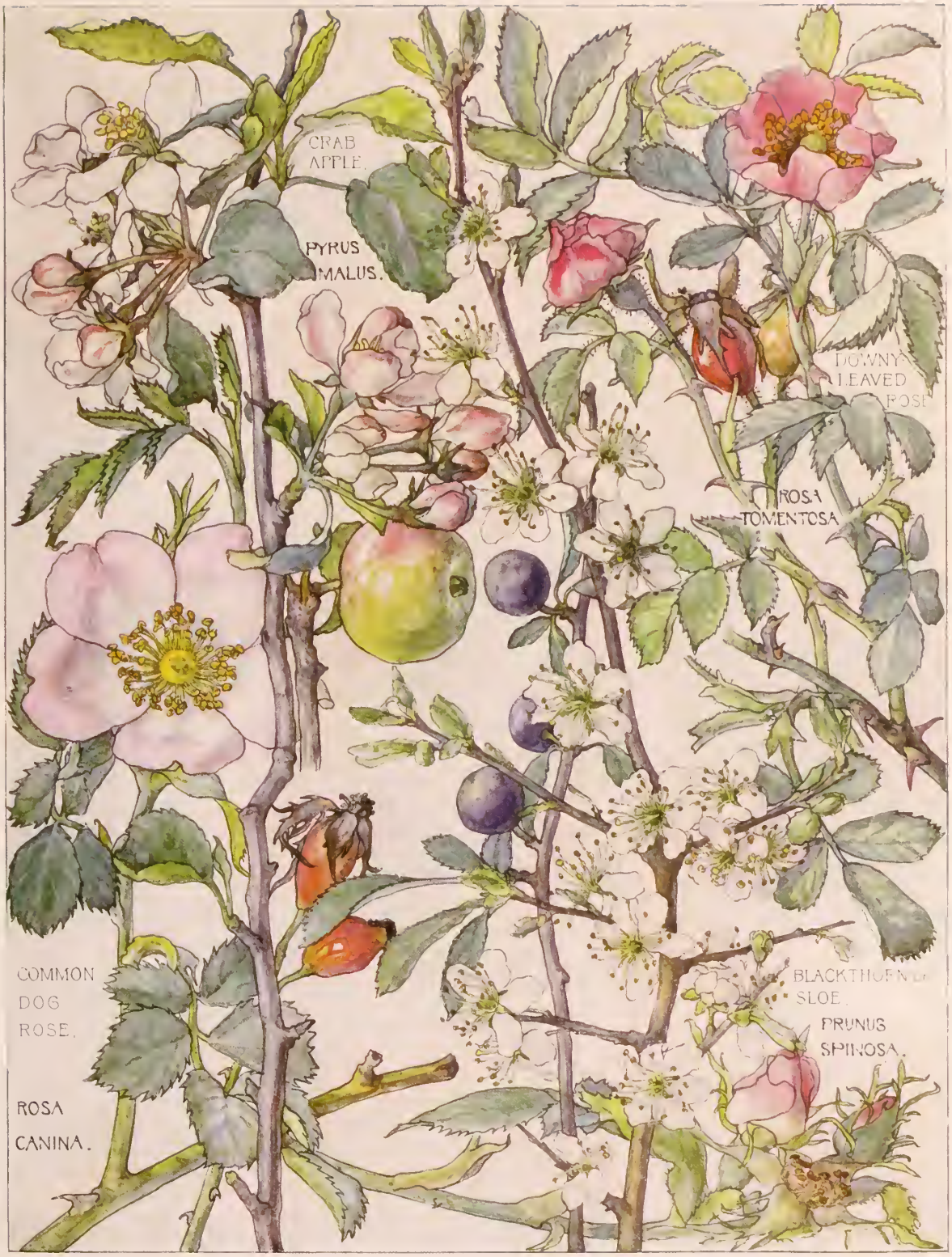
***Medlar. (Pyrus germanica, Hook. fil.)**—Not a native. Flowers 1½ inches across, white, solitary, very shortly-stalked. Sepals 5, united into a bell-shaped tube, and separating at the top into 5 large, leafy teeth, remaining with the fruit; petals 5; stamens numerous; carpels 5, with 5 free styles. Fruit nearly round or pear-shaped, fleshy, slightly downy, reddish-brown, crowned by the peristent calyx-teeth, and partly shewing at the top the 5 horny, 1-seeded cells. A small, thorny, much-branched tree or shrub, losing its thorns when cultivated, with the leaves undivided (simple), oblong, entire, or finely toothed (serrated), and downy underneath.
Very rare. Supposed to be naturalised in Surrey, Sussex, Kent, and Worcestershire. May—June. Tree.

ROSE. (ROSA.)—Flowers large, pink, red, or white, rarely yellow, solitary or several in a cluster (corymb). Calyx of 5 sepals, united into a round or oval fleshy tube contracted at the mouth, and separating into 5 leafy, sometimes lobed teeth; petals 5, inserted in the throat of the calyx-tube; stamens numerous, inserted with the petals; carpels several, not united (free), with the seedcases (ovaries) embedded in the calyx-tube which together form the fruit—a slightly pulpy, rather dry, red or black berry—the styles and stigmas appearing through the mouth of the calyx-tube. Erect or climbing shrubs, usually prickly, with leaves divided to the midrib into 2–3 pairs of leaflets and 1 terminal one (imparipinnate); and with large stipules adhering to the leaf-stalk (petiole).

Burnet or Scotch Rose. (Rosa pimpinellifolia, Linn.)—Flowers 1½–2 inches across, white, rarely pink, solitary. Calyx-tube round and smooth, with entire teeth which remain with the fruit (persistent); petals 5; stamens numerous. Fruit a round or nearly round purplish-black berry. A small, erect, much-branched shrub, usually less than 1 foot high, covered with unequal, straight prickles, passing into stiff bristles and gland-tipped hairs; the leaves divided to the midrib into 3 or 4 pairs of oval, toothed, smooth leaflets, with 1 terminal leaflet (imparipinnate).
A common shrub on sandy sea-shores and chalky heaths and commons. May—June. Perennial.

Red-fruited Burnet Rose. (Rosa involuta, Sm.)—A very similar species, differing in having 1–3 flowers together, red fruit, and twice-toothed, downy leaflets.
Rare. Sea-shores in the north. May—August. Perennial.

Irish Burnet Rose. (Rosa hibernica, Sm.)—Another similar species to the Common


CRAB APPLE.
PYRUS MALUS.
DOWNY LEAVED ROSE
ROSA TOMENTOSA
COMMON DOG ROSE.
ROSA CANINA.
BLACKTHORN OR SLOE.
PRUNUS SPINOSA.

Burnet Rose, differing in having its flowers solitary or several in a cluster, pale pink; the fruit red; and the leaflets smooth above and downy beneath.
Very rare. Ireland and in the north of England. May—August. Perennial.

Soft-leaved Rose. (Rosa mollis, Sm.)—Flowers 1½–2 inches across, deep rose-colour to white, 1–3 in a cluster. Calyx-tube round, with entire or divided teeth remaining with the fruit (persistent); petals 5; stamens numerous. Fruit roundish (globose), with gland-tipped hairs, scarlet. A shrub 3–8 feet high, with uniform, nearly straight prickles. Leaves divided to the midrib into 2 or 3 pairs of egg-shaped (ovate), doubly toothed (serrate) leaflets, with 1 terminal leaflet (imparipinnate), all covered with soft white hairs.
Fairly common. Hedges and bushy places, chiefly in the North. June—July. Perennial.

Downy-leaved Rose. (Rosa tomentosa, Sm.)—A very similar shrub to the Soft-leaved Rose, with the calyx-tube longer and the teeth deeply divided and falling early from the more oval fruit; and with the leaflets narrower and more pointed. [*Plate* 39.
Very common. Hedges and thickets. June—July. Perennial.

Sweet Briar, Eglantine. (Rosa rubiginosa, Linn.)—Flowers 1¼ inch across, rose-colour, 1–4 together. Calyx-teeth much divided; petals 5; stamens numerous. Fruit pear-shaped, scarlet. An erect, compact bush, 2–4 feet high, with numerous large curved prickles mixed with smaller straight ones and gland-tipped bristles; the leaves divided to the midrib into 2 or 3 pairs of roundish, doubly toothed (serrate) small leaflets and 1 terminal one (imparipinnate), shiny above and thickly covered beneath with sticky fragrant glands which give the familiar sweet scent to the whole bush. This is commonly considered to be the eglantine of the poets, always excepting Milton, who evidently alluded to the Honeysuckle.
Not uncommon on chalky heaths and sandy sea-shores, in hedges and bushy places. May—July. Perennial.

Small-flowered Sweet Briar. (Rosa micrantha, Sm.)—A very similar bush to the Common Sweet Briar, having smaller and paler rose-coloured flowers, small egg-shaped (ovate) fruit, and long, arched branches with equal hooked prickles, and leaflets rounded at the base. Slightly scented.
Not common. Hedges and bushy places. July—August. Perennial.

Small-leaved Sweet Briar. (Rosa sepium, Thuill.)—Another similar bush, with the sepal teeth remaining with the fruit (persistent), fruit oval, stems with unequal hooked prickles and fewer gland-tipped bristles, leaves acute at the base.
Very rare, local. Hedges and bushy places on heaths. June—July. Perennial.

Blunt-leaved Rose. (Rosa obtusifolia, Desv.)—Flowers white or pale-pink, usually on stalks without prickles. Calyx-teeth turned back (reflexed) and falling quickly; petals 5; stamens numerous. Fruit small, nearly round (sub-globular). A large bush, with long, arching branches and hooked prickles. Leaves divided to the midrib into 2 or 3 pairs of leaflets rounded at the base, and 1 terminal leaflet (imparipinnate), with a few glands underneath.
Not common. Hedges and bushy places. June—July. Perennial.

Common Dog Rose. (Rosa canina, Linn.)—Flowers large, pink or white, sweet-scented, solitary or 3 or 4 together. Calyx-teeth frequently with only 3 deeply divided, and the other 2 entire, turned back (reflexed), falling early in fruit; petals 5; stamens numerous; styles free. Fruit oval or nearly round. A large bush, 2–6 feet high, with curved or hooked prickles and no glands, and the leaves divided to the midrib into 2 or 3 pairs of egg-shaped (ovate), usually simple, toothed leaflets, and 1 terminal one (imparipinnate). [*Plate* 39.
This is the rose usually found in our hedges, of which there are a large number of varieties.
Very common. Hedges and thickets. June—July. Perennial.

Glaucose Rose. (**Rosa glauca, Vill.**)—A very similar species, having the calyx-teeth ascending in fruit and not falling until the fruit is ripe; leaflets smooth (glaucous).
Local. Hedges and bushy places. June—July. Perennial.

Close-styled Rose. Rosa stylosa (sp. collect.)—Very similar to the Dog Rose, but having the styles united together into a column.
Rare. Hedges and thickets in the southern counties. June—July. Perennial.

White-flowered Trailing Rose or Field Rose. (**Rosa arvensis, Huds.**)—Flowers white and scentless, usually 3 or 4 together. Calyx-teeth short, entire or slightly divided, turned back (reflexed), purple, falling in fruit (deciduous); petals 5, white; stamens numerous; styles united into a long slender column. Fruit oval or nearly round, scarlet. A trailing shrub, with purple branches and small hooked prickles, and with the leaves divided to the midrib into 2 or 3 pairs of oval, finely and rather remotely toothed leaflets, and 1 terminal one (imparipinnate), generally smooth (glabrous) on both sides.
Common. Woods and hedges. June—August. Perennial.

BRAMBLE or BLACKBERRY, RASPBERRY, &c. (**RUBUS, LINN.**)—Flowers white or pink, in clusters (panicles), rarely solitary. Sepals 5, united at the base, separating into 5 teeth; petals 5; stamens numerous; carpels numerous, the seedcases cohering but not united together, each terminating in a style and stigma. Fruit a head of small berries (drupes), formed by the cohesion of the numerous 1-seeded, juicy, pulpy seedcases round an elongated, spongy receptacle. Shrubs or herbs, usually prickly, with leaves divided to the midrib (pinnate), or to the base (palmate), or rarely simple and more or less deeply lobed towards the base; with stipules usually more or less adhering to the base of the leaf-stalk.

Raspberry. (**Rubus idæus, Linn.**)—Flowers $\frac{3}{4}$ inch across, drooping, white, in long clusters (cymes). Sepals 5; petals 5, narrow and short; stamens numerous; carpels numerous. Fruit a head of red or amber-coloured 1-seeded little berries (drupes), clustered together round an elongated, spongy receptacle. A shrub 3–5 feet high, with suckers; stems erect, round, with weak prickles; the leaves divided to the midrib into 1 or 2 pairs of oval or egg-shaped, toothed leaflets and one terminal one (imparipinnate), white underneath; stipules narrow, adhering to the base of the leaf-stalk.
Not common. Woods, heaths. May—August. Stem biennial, root perennial.

Bramble or Blackberry. (**Rubus fruticosus, Linn.**)—Flowers from $\frac{3}{4}$–$1\frac{1}{2}$ inches across, white or pink, erect in compound clusters (panicles). Sepals 5, remaining with the fruit (persistent); petals 5; stamens numerous; carpels numerous. Fruit consisting of a varying number of juicy 1-seeded little berries (drupes), black or of a dull red, clustered together on an elongated spongy receptacle. Stems shrubby, sometimes erect, generally arched and straggling, often rooting at the extremity and forming fresh plants, with various kinds of prickles, hairs, or bristles. Leaves divided to the base into 3–7 toothed (serrate) leaflets or occasionally divided to the midrib into 2 or 3 pairs of leaflets, with one terminal one (imparipinnate). Stipules with the lower part joined to the leaf-stalk (petiole).
Very common. Roadsides, hedges, woods, waste places. June—September. Perennial.

Though alike in all the above essentials, the Brambles differ so greatly in some details, such as the stems, prickles, hairs, and the shape of the leaflets, that a large number of species have been named. About 158 species and varieties are given in the London Catalogue of British Plants. Here it will suffice to give the characteristics of the nine groups under which all these species and varieties are classed.

Group 1, Suberecti.—Sepals green with a narrow white border; petals white. Stems

WOOD AVEN.
GEUM URBANUM.
BRAMBLE
BLACKBERRY
RUBUS
DISCOLOR.
WATER AVENS
GEUM RIVALE
RUBUS
RHAMNIFOLIUS.

angular, half erect, not rooting at their extremities, without gland-tipped hairs or bristles, and with few prickles, mostly equal, and only on the angles of the stems.
Not a common species. Found in boggy woods.

Group 2, Rhamnifolii.—Sepals covered with white felt; petals white. Fruit large, black, and juicy. Stems angular and furrowed, arching and rooting at their extremities, with few hairs, none gland-tipped, prickles mostly equal and on the angles of the stems. [*Plate* 40.
Not common. Found in woods and hedges.

Group 3, Discolores.—Sepals covered with grey felt; petals often pink. Fruit small. Stems angular and furrowed, downy, with strong, equal prickles on the angles of the stems; leaves covered with white felt underneath. [*Plate* 40.
This is one of the commonest brambles in England. Found in hedges and thickets.

Group 4, Silvatici.—Sepals usually turned back in fruit; petals sometimes deep pink. Stems angular, arched or prostrate, rooting at their extremities, with woolly, spreading hairs, and moderate-sized equal prickles on the angles of the stems; leaves green, sometimes white beneath.
Some species common. Woods, thickets, hedges.

Group 5, Egregii.—Flower-stalks with some gland-tipped hairs. Sepals seldom turned back in fruit; petals pink. Stems rounded, arched or prostrate, and rooting at their extremities, with dense woolly hairs, a few gland-tipped hairs and bristles, and unequal prickles on the angles of the stems; leaves green underneath.
Rather rare. Woods, hedges, heaths.

Group 6, Radulæ.—Flower-stalks with many gland-tipped hairs and bristles. Petals white or pink. Stems angular, rough, prostrate, slightly arched, with a few gland-tipped hairs and bristles, and nearly equal prickles which are on the angles of the stems.
Some species common. Hedges, woods.

Group 7, Koehleriani.—Petals often pink. Stems angular, prostrate, slightly arched, rooting at their extremities, with many gland-tipped hairs and bristles gradually passing into numerous very unequal prickles which are scattered over the stems; leaves mostly divided to the base into 5 leaflets.

Group 8, Bellardiani.—Low-growing small shrubs. Stems usually round and prostrate, rooting at their extremities, with many gland-tipped hairs and bristles, and weak, unequal prickles; leaves mostly divided to the base into 3 leaflets.

Group 9, Dewberry, Cæsii.—Flowers large. Sepals closing over the fruit. Fruit of a few larger black berries (drupes) with a blue bloom. Stems roundish or slightly angled, with a bluish bloom (glaucous), slightly arched or prostrate, rooting at their extremities, with none or few gland-tipped hairs or bristles, and slender, unequal prickles.
Common. Hedges, thickets, waste places.

Stone Bramble. (Rubus saxatilis, Linn.)—Flowers small, $\frac{3}{8}$ inch across, few, white, in small terminal clusters (corymbs). Sepals 5, with triangular teeth; petals 5, small, narrow, white; stamens numerous; carpels 1–4. Fruit consisting of clusters of 1–4 juicy little shining red berries (drupes). Stems 1–2 feet high, erect, rooting at their extremities, with no prickles or a very few slender ones; leaves divided to the base into 3 stalked, thin, pale-green leaflets.
Local. Common in the north in stony, hilly districts. June—August. Perennial.

Cloudberry. (Rubus Chamæmorus, Linn.)—Flowers large, $\frac{3}{4}$–$1\frac{1}{4}$ inches across, solitary, white, terminating the stem. Sepals 5, oval, often tinged with red; petals 5, pure white; stamens numerous; carpels few. Fruit a berry, consisting of clusters of a few large, very juicy little berries (drupes), at first red, orange when ripe. Stems 6 inches high, erect, unbranched, without prickles,

and with leaves only on the upper part of the stem; the leaves being undivided (simple), roundish 5–7-lobed, toothed, heart-shaped at the base (cordate).
Rare. On peaty bogs in the North, and in north Wales. June—July. Perennial.

MOUNTAIN AVENS. (DRYAS, LINN.)—Flowers large, solitary, white or yellow. Sepals 8–10, united at the base; petals 8–10, rarely fewer, entire; stamens, numerous; carpels numerous, not united (free), with the long feathery styles remaining with the fruit (persistent). Fruit a head of achenes, small, dry, 1-seeded fruits which decay to free the seeds (indehiscent), each achene ending in the persistent long feathery style, which is not hooked. Prostrate herbs, with undivided (simple), oblong leaves, white underneath.

White Mountain Avens. (Dryas octopetala, Linn.)—The only British species (as just described). The flowers 1–1¾ inches across, white; with 8 sepals; 8 petals; and the stems 2–5 inches high, with oblong, scalloped leaves (crenate).
Very rare. Mountain districts, especially on limestone. June—July. Perennial.

AVENS. (GEUM, LINN.)—Flowers on long stalks, yellow, sometimes reddish, in irregular terminal clusters (cymes). Sepals 5, united at the base, remaining with the fruit (persistent), with an outer row of 5 small bracts; petals 5; stamens numerous; carpels numerous, not united (free), the styles remaining with the fruit (persistent). Fruit a head of achenes (small, dry, 1-seeded fruits, which decay to free the seeds), each ending in the hairy style, which is hooked at the tip. Herbs with leaves divided to the midrib into several pairs of leaflets, with 1 terminal one (imparipinnate). Stipules leafy (foliaceous).

Wood Avens, Herb Bennet. (Geum urbanum, Linn.)—Flowers ½–¾ inch across, few, yellow, on long stalks, in irregular, terminal clusters. Sepals 5; bracts 5; petals 5; stamens numerous; carpels numerous. Fruits in a dense head of small, dry, 1-seeded achenes, each ending in the persistent style, which is red and hairy and is hooked at the tip. Stems 8 inches to 3 feet high, erect, hairy; the leaves of the root divided to the midrib into 2–4 pairs of large, coarsely-toothed leaflets, intermixed with smaller ones and one large terminal one (lyrately-imparipinnate); the leaves of the upper stem only divided into 3 leaflets (pinnately-trifoliate), with large leafy stipules. [*Plate* 40.
Very common. Woods, hedges, thickets. June—September. Perennial.

Water Avens. (Geum rivale, Linn.)—Flowers much larger than those of the Wood Avens, few, drooping, cup-shaped, yellow tinged with pink, in terminal clusters. Sepals 5, broad, purplish-red; bracts 5, very small and narrow, purplish-red; petals 5, pale yellow tinged with pink and veined; stamens numerous; carpels numerous. Fruits in a round head, on a stalk which lifts them above the sepals and bracts, small, dry, 1-seeded achenes, ending in the persistent style, which is hairy and red and notched in the middle. Stem 1–2 feet high, erect, stout, hairy; leaves chiefly from the root (radical), divided to the midrib into 2–4 pairs of coarsely-toothed leaflets, intermixed with small ones, and terminating in one very large roundish one (lyrately, imparipinnate); those of the stem divided into 3 leaflets, or only 3-lobed, toothed, and with small, leafy stipules. [*Plate* 40.
Not common. Moist woods and by the sides of streams and ditches. June—July. Perennial.

CINQUEFOIL. (POTENTILLA, LINN.)—Flowers yellow, white, rarely red or purple, solitary, or in terminal clusters (cymes). Sepals 5, rarely 4, uniting into a short tube, and separating into the same number of teeth, with an outer row of the same number of sepal-like bracts (epicalyx); petals 5, rarely 4, usually notched, inserted in the throat of the calyx-tube; stamens 4–10, or numerous, inserted with the petals; carpels 4–10, or numerous, not united (free). Fruit a head of

achenes, small, dry, 1-seeded fruits, which do not open, but decay to free the seeds (indehiscent). Herbs with leaves divided to the base (palmate), or to the midrib (pinnate). Stipules joined to the leaf-stalks (petioles).

*Norwegian Cinquefoil. (Potentilla norvegica, Linn.)—Not a native; probably brought from Norway with timber. As just described. The flowers yellow, in crowded clusters (racemes), the stems from 8–10 inches high, hairy, and the leaves divided from the base into 3 leaflets (palmate).

Not a native. Introduced into Cambridgeshire and several other counties. June—July. Annual.

*Hairy Cinquefoil. (Potentilla hirta, Linn.)—Another introduced species, similar to the last, but with much narrower leaflets, which are from 5–7 in number.

Rare. Not a native.

Barren Strawberry. (Potentilla Fragariastrum, Ehrh.)—Flowers ½ inch across, few, white, in terminal clusters (cymes). Sepals 5, longer than the outer row of 5 bracts (epicalyx); petals 5, short, notched, white; stamens numerous; carpels numerous. Fruit a head of achenes, small, dry, 1-seeded fruits, which decay to free the seeds (indehiscent). Stems 1–6 inches high, short and tufted, procumbent, without runners; the leaves on long stalks, divided to the base into 3 oval, scalloped leaflets (palmately trifoliate); the stipules lance-shaped. This plant resembles the true Wood Strawberry, but it is characterised by the difference in the fruits, in the petals being narrower, in having no runners, and in the early flowering. [*Plate* 41.

Very common. Banks and hedges. January—May. Perennial.

Spring Cinquefoil. (Potentilla verna, Linn.)—Flowers ½ inch across, yellow, stalked, 1–3 together in a loose cluster. Sepals 5; bracts 5; petals 5, yellow, notched; stamens numerous; carpels numerous. Fruit a head of achenes, small, dry, 1-seeded fruits which decay to free the seeds (indehiscent). Stems 1–6 inches long, prostrate, hairy, the lower leaves on long stalks, divided to the base into 5–7 oblong, toothed, hairy leaflets; the upper leaves nearly stalkless (sessile), divided to the base into 3–5 toothed leaflets; the stipules entire, those of the root-leaves narrow, and those of the stem-leaves broadly lance-shaped.

Rare. Dry banks and pastures in hilly districts. April—June. Perennial.

Alpine Cinquefoil. (Potentilla rubens, Vill.)—A very similar species, with more numerous and larger flowers, 1 inch across, of a deeper yellow, and stems 4–10 inches high.

Very rare. Rocks and mountain slopes in the north of England, Wales, and Scotland. June—July. Perennial.

Common Tormentil. (Potentilla silvestris, Neck.)—Flowers ½–¾ inch across, yellow, on long stalks (peduncles), apparently solitary. Sepals 4; bracts 4, narrower than the sepals; petals 4, rarely 5, notched; stamens numerous; carpels numerous. Fruit a head of achenes, small, dry, 1-seeded fruits, which decay to free the seeds (indehiscent). Stems 6–10 inches high, numerous, branched; the leaves of the root (radical) stalked, of the stem (cauline) stalkless (sessile), all deeply lobed to the base into 3, rarely 5, lobed and toothed leaflets, the outer leaflets being so deeply lobed as to give the leaf the appearance of having 5 leaflets. Stipules lobed or entire.

Very common. Heaths, open woods, banks. June—September. Perennial. [*Plate* 41.

Trailing Tormentil. (Potentilla procumbens, Sibth.)—A very similar species, having larger, nearly solitary flowers, usually with 5 petals, longer and more prostrate stems, often 1–2 feet long, and the stem-leaves stalked.

Common. Banks and woods. June—August. Perennial.

Creeping Cinquefoil. (Potentilla reptans, Linn.)—Flowers ¾ inch across, bright yellow, solitary, on long stalks (peduncles) opposite the leaves. Sepals 5; bracts 5, as large and broad as the sepals; petals 5; stamens numerous; carpels numerous. Fruit a head of achenes,

small, dry, 1-seeded fruits, which decay to free the seeds (indehiscent). Stem 6–18 inches long, creeping, rooting at the nodes; leaves stalked, divided to the base into 5 oblong, toothed (serrate) leaflets; the stipules egg-shaped and entire. [*Plate* 41.

Common. Waysides, pastures, meadows. June—September. Perennial.

Silver-weed. (Potentilla Anserina, Linn.)—Flowers ¾–1 inch across, solitary, on long stalks (peduncles), bright yellow. Sepals 5; bracts 5, narrower than the sepals; petals 5; stamens numerous; carpels numerous. Fruit a head of achenes, small, dry, 1-seeded fruits, which decay to free the seeds (indehiscent). Stem 6–12 inches long, prostrate, rooting at the nodes; leaves all stalked, divided to the midrib into 6–10 pairs of oblong, toothed leaflets with one terminal one (imparipinnate), all covered with soft, silky hairs, silvery-white underneath; the stipules egg-shaped (ovate), sometimes cut. [*Plate* 41.

Common. Waysides, meadows, fields, hill-sides. June—August. Perennial.

Strawberry-leaved Cinquefoil. (Potentilla rupestris, Linn.)—Flowers large, few, white, in terminal clusters (cymes). Sepals 5; bracts 5; petals 5, entire; stamens numerous; carpels numerous. Fruit a head of achenes. Stems 1–2 feet high; the leaves of the root (radical) on long stalks, divided to the midrib into 2–3 pairs of egg-shaped (ovate), toothed (serrate) leaflets and 1 terminal one (imparipinnate); of the stem, stalkless or nearly so, only divided into 3 leaflets (pinnately trifoliate); the stipules very large, egg-shaped (ovate), and often toothed.

Very rare. Limestone rocks in two places in Wales. May—June. Perennial.

Hoary Cinquefoil. (Potentilla argentea, Linn.)—Flowers ½ inch across, yellow, stalked, in terminal clusters (corymbose cymes). Sepals 5; bracts 5, narrower than the sepals; petals 5, nearly entire; stamens numerous; carpels numerous. Fruit a head of achenes, small, dry, 1-seeded fruits, which decay to free the seeds (indehiscent). Stem 6–18 inches high, erect, branched, covered with close white down; the lower leaves stalked, divided to the base into 5 narrow, wedge-shaped, lobed leaflets (palmate); the upper leaves stalkless (sessile), divided to the base into 3 lobed leaflets (palmately trifoliate); all white underneath with close white down; the stipules long and entire.

Not common. Dry gravelly or sandy places. June—July. Perennial.

Shrubby Cinquefoil. (Potentilla fruticosa, Linn.)—Flowers large, yellow, stalked, several in terminal clusters. Sepals 5; bracts 5, narrower than the sepals; petals 5, entire; stamens numerous; carpels numerous. Fruit a head of hairy achenes, small, dry, 1-seeded fruits, which decay to free the seeds (indehiscent). A shrub 1–4 feet high, much branched; the leaves stalked and divided to the midrib into 2, rarely 3, pairs of entire, narrow leaflets, with 1 terminal one (imparipinnate); the stipules long and entire.

Very rare. Only found in a few mountain districts in the north of England and west of Ireland. June—July. Perennial.

Marsh Cinquefoil. (Potentilla palustris, Scop.)—Flowers 1–1½ inches across, crimson to purple and brown, stalked, in terminal clusters (cymes). Sepals 5, large, broad, pointed at the tip, crimson to purple inside, greenish outside (petaloid); bracts 5, strap-shaped, purplish inside; petals 5, very much smaller than the petaloid sepals, crimson; stamens numerous, with crimson filaments; carpels numerous. Fruit of numerous achenes, small, dry, 1-seeded fruits which decay to free the seeds (indehiscent), situated on the outer surface of a spongy, cone-shaped mass. Stems 1–2 feet high, smooth, red; the leaves divided to the midrib into 2–3 pairs of oblong, toothed leaflets and 1 terminal one (imparipinnate), white underneath; the stipules large, egg-shaped (ovate), pointed, often toothed. [*Plate* 41.

Not uncommon. Marshes and bogs. May—July. Perennial.

CREEPING
CINQUEFOIL.
POTENTILLA
REPTANS.
COMMON
TORMENTIL.
POTENTILLA
SILVESTRIS.
MARSH
CINQUEFOIL.
POTENTILLA
FRAGARIASTRUM.
BARREN
STRAWBERRY.
POTENTILLA
PALUSTRIS.
SILVER
WEED.
POTENTILLA
ANSERINA.

Procumbent Sibbaldia. (**Potentilla Sibbaldi, Hall, fil.**)—Flowers small, $\frac{1}{4}$ inch across, few, yellow, 3–9 in close terminal clusters (corymbs). Sepals 5; bracts 5; petals 5 or 0; stamens 5–7, rarely more; carpels 5–7, rarely more. Fruit a head of pale yellow, shining achenes, small, dry, 1-seeded fruits which decay to free the seeds (indehiscent). Stems 3–5 inches long, prostrate; the leaves stalked, divided to the midrib into 3 oblong leaflets (pinnately-trifoliate), which are 3-toothed at the tip; the stipules large, pointed egg-shaped (ovate).

Very rare. Found in abundance on the summits of some Scotch mountains. June—July. Perennial.

STRAWBERRY. (**FRAGARIA, LINN.**)—Flowers white, few, in terminal clusters (cymes). Sepals 5, united at the base, with an outer row of 5 bracts (epicalyx); petals 5, white, inserted in the throat of the calyx-tube; stamens numerous, inserted with the petals; carpels numerous, not united together (free). Fruit a roundish, juicy, fleshy berry, formed by the upgrowth of the receptacle, bearing its small, dry seeds (achenes) on its outer surface. Herbs with rooting stems (runners). Leaves divided to the base into 3 leaflets (palmately-trifoliate), with lance-shaped stipules.

Wood Strawberry. (**Fragaria vesca, Linn.**)—Flowers $\frac{1}{2}$–$\frac{3}{4}$ inch across, erect, white, 4–5 in a cluster, on long, generally leafless, hairy stalks, rising from the root (scapes). Sepals 5, with a row of 5 outer bracts; petals 5, entire; stamens numerous; carpels numerous. Fruit $\frac{1}{2}$–$\frac{3}{4}$ inch long, a fleshy, usually red berry, bearing its small, dry seeds (achenes) on its outer surface. Root-stock short and tufted, sending out long, slender stems, runners, which take root at the nodes, thus forming other plants; the leaves all from the root (radical), on long stalks, divided to the base into 3 stalkless leaflets, which are oval, coarsely toothed (serrate), and hairy; the stipules joined to the base of the leaf-stems (petioles). [*Plate* 42.

Very common. Woods, shady hedge banks, bushy pastures. May—July. Perennial.

***Hautboy Strawberry.** (**Fragaria elatior, Ehrh.**)—Not a native. Very similar to the Wood Strawberry, with larger flowers, which have either stamens or carpels (dicœcious), the whole plant larger and more hairy, and the leaflets stalked.

Rare; an escape from cultivation. Woods and hedge banks. May—July. Perennial.

SPIRÆA, MEADOW-SWEET. (**SPIRÆA, LINN.**)—Flowers small, numerous, in graceful terminal clusters (corymbs). Sepals 5, uniting into a bell-shaped tube, and separating into 5 teeth, remaining with the fruit (persistent); petals 5, inserted in the throat of the calyx-tube; stamens numerous; carpels 5 or more, not united (free). Fruit of as many dry follicles as there are carpels, which open when ripe along the inner edge, each containing 2 seeds. Herbs or shrubs with undivided (simple) or divided leaves, with or without stipules.

***Willow-leaved Spiræa.** (**Spiræa salicifolia, Linn.**)—Not a native. Flowers $\frac{3}{8}$ inch across, pink, in dense, spike-like clusters. Sepals 5; petals 5; stamens numerous; carpels 5. Fruit of 5 dry, 2-seeded follicles, opening along the inner edge. A bushy shrub 3–4 feet high; the leaves shortly-stalked, undivided (simple), oblong, toothed (serrate), green on both sides; without stipules.

Local. Common in some localities in the North, and in north Wales. Moist woods. July—August. Shrub.

Meadow-sweet, Queen of the Meadows. (**Spiræa Ulmaria, Linn.**)—Flowers $\frac{1}{4}$–$\frac{3}{8}$ inch across, creamy-white, in densely crowded, compound clusters (compound cymes). Sepals 5; petals 5; stamens numerous; carpels 5–9. Fruit 5–9 dry follicles, smooth, spiral, olive-green,

opening when ripe along the inner edge. Stem 2–4 feet high, erect, furrowed, purplish; leaves large, divided to the midrib into 5–9 pairs of unequal toothed leaflets and one very large terminal lobed leaflet (lyrately-imparipinnate), all usually white underneath; stipules broad and toothed. Sweet-scented. [*Plate* 42.

Very common. Damp meadows, and by the side of water. June—August. Perennial.

Dropwort. (Spiræa Filipendula, Linn.)—A similar plant to the last with larger and fewer flowers, often tipped with red; fruit of 6–12 downy, straight, dry follicles; stem 1–2 feet high; and leaves with many more and much smaller and narrower leaflets. Root with oblong tubers.

Not uncommon. Dry pastures, especially on chalk. June—July. Perennial.

LADY'S MANTLE. (ALCHEMILLA, LINN.)—Flowers minute, greenish, without petals, in terminal clusters. Sepals 4, united into a tube and separating into 4 broad teeth, with an outer row of 4 narrow bracts (epicalyx); petals 0; stamens 4 or fewer, inserted in the throat of the calyx-tube; carpels 1–4, not united (free). Fruit of 1–4 achenes enclosed in the calyx-tube, small, dry, 1-seeded fruits which decay to free the seeds (indehiscent). Small herbs, with undivided (simple), round, more or less lobed, toothed leaves and leaf-like (foliaceous) stipules.

Field Lady's Mantle, Parsley-Piert. (Alchemilla arvensis, Scop.)—Flowers minute, green, in small, dense, stalkless clusters, opposite to and hidden by the leaves. Sepals 4; bracts 4; petals 0; stamens generally only 1 or 2 with pollen. Fruit of 1 or 2 achenes enclosed in the calyx-tube. Stems generally only from 1–3 inches high, sometimes as much as 8 inches, prostrate; the leaves on short stalks, small, round, lobed into 3 toothed segments; the stipules leafy, and lobed.

Very common. Cultivated fields, waste places. May—July. Annual.

Common Lady's Mantle. (Alchemilla vulgaris, Linn.)—Flowers $\frac{1}{8}$ inch across, stalked, greenish-yellow, in loose branching clusters (cymes). Sepals 4; bracts 4; petals 0; stamens generally 4, with pollen; carpels 4; fruit of generally 4 achenes, enclosed in the calyx-tube. Stems 3–18 inches high, woody; leaves of the root large, roundly kidney-shaped (reniform), 7- to 9-lobed, toothed (serrated), plaited, on long stalks; leaves of the stem shortly stalked, and 5- to 7-lobed; the leafy stipules large, toothed, and green. [*Plate* 42.

Common. Meadows and pastures. June—July. Perennial.

Alpine Lady's Mantle. (Alchemilla alpina, Linn.)—A very similar plant only 3–9 inches high, with leaves lobed to the base, lustrously white and shiny.

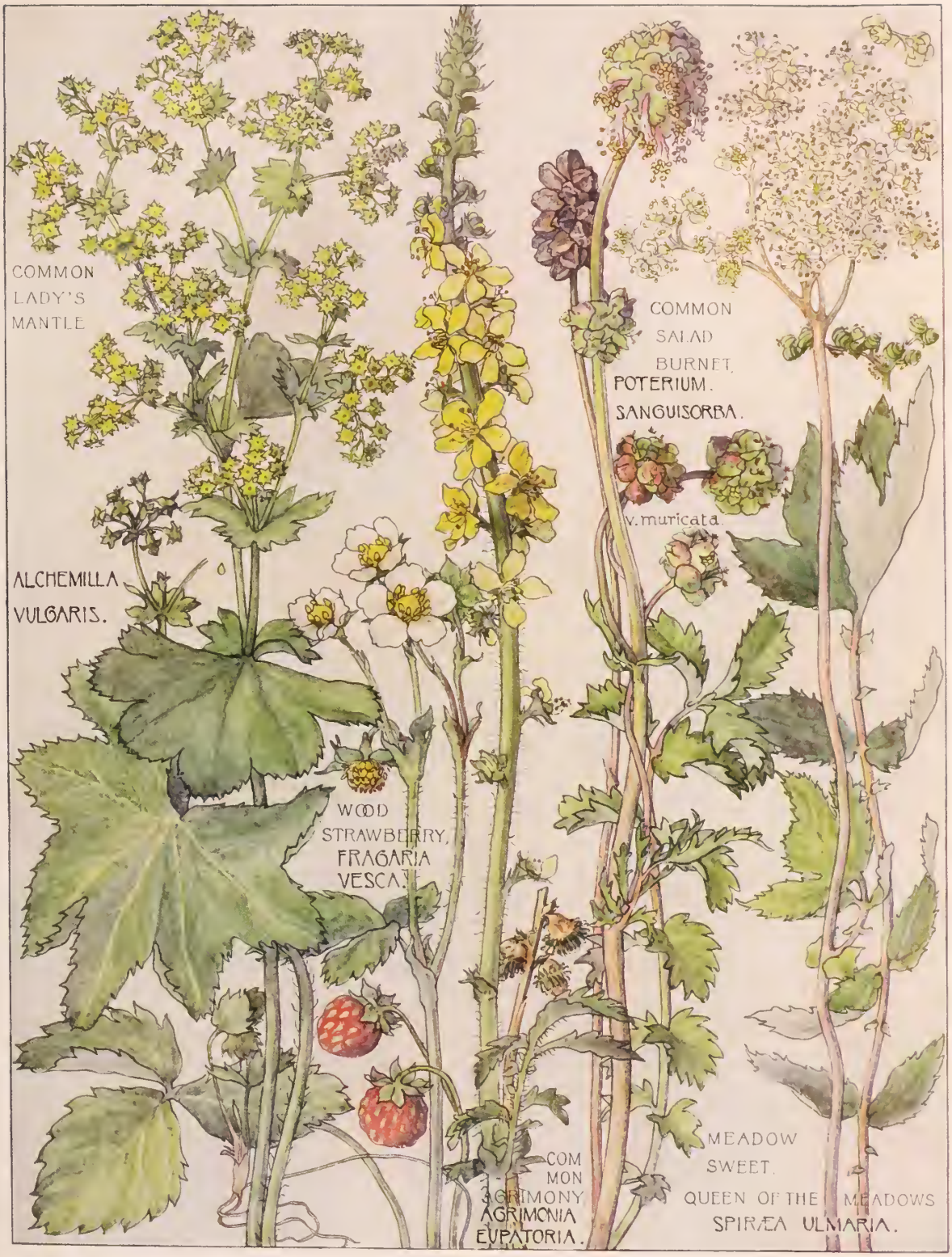
Rare. Scotch mountains. June—August. Perennial.

Silver Lady's Mantle. (Alchemilla argentea, Lam.)—A closely allied species, with leaves larger, nearly round, joined at the base, so that the stalk appears to be inserted under the leaf (peltate).

Very rare. North of Scotland. June—July. Perennial.

AGRIMONY. (AGRIMONIA, LINN.)—Flowers small, yellow, in terminal spike-like clusters (racemes). Sepals 5, uniting into a bell-shaped tube, and separating into 5 teeth, remaining with the fruit (persistent) and then being covered with hooked bristles; petals 5, inserted in the throat of the calyx-tube; stamens 12–20, inserted with the petals; carpels usually 2, not united (free). Fruit of usually 2 achenes, small, dry, 1-seeded fruits which decay to free the seed, enclosed within the spinous calyx-tube. Herbs with leaves divided to the midrib into several pairs of toothed leaflets, with one terminal leaflet (imparipinnate), and leaf-like (foliaceous) stipules.

Common Agrimony. (Agrimonia Eupatoria, Linn.)—Flowers $\frac{3}{8}$ inch across, bright lemon-yellow, shortly-stalked, in long, tapering, spike-like clusters (racemes). Sepals 5, hairy, and


COMMON
LADY'S
MANTLE
ALCHEMILLA
VULGARIS.
COMMON
SALAD
BURNET.
POTERIUM.
SANGUISORBA.
v. muricata.
WOOD
STRAWBERRY.
FRAGARIA
VESCA.
COM
MON
AGRIMONY
AGRIMONIA
EUPATORIA.
MEADOW
SWEET.
QUEEN OF THE MEADOWS
SPIRÆA ULMARIA.

erect in flower, deeply grooved, and thickly covered with hooked bristles after flowering; petals 5; stamens 6–14. Fruit of 2 achenes, enclosed in the spinous calyx-tube. Stems 1–2 feet high, shaggy with soft hairs; the leaves of the lower stem divided to the midrib into 2–4 pairs of egg-shaped (ovate), coarsely toothed (serrate) leaflets, and 1 terminal one (imparipinnate), intermixed with much smaller ones (interruptedly pinnate); the upper leaves smaller, and with fewer leaflets; stipules half-moon shaped, and toothed. [*Plate* 42.

Common. Fields, waysides. June—August. Perennial.

Scented Agrimony. (Agrimonia odorata, Mill.)—A very similar plant, having the flowers larger and denser; the calyx-tube bell-shaped and hardly furrowed; the leaves with yellow glands underneath, which give the plant an aromatic scent.

Rare. Thickets and waste places. June—July. Perennial.

BURNET. (POTERIUM, LINN.)—Flowers small, purplish, green, or white, in dense oval or cylindrical heads. Sepals 4, united into a top-shaped (turbinate) tube and separating into 4 teeth, remaining with the fruit (persistent), and becoming 4-winged when the fruit ripens; petals 0; stamens 4–30, with filaments longer than the calyx (exserted), inserted in the throat of the calyx-tube, sometimes altogether absent in the upper flowers of the cluster; carpels 1–3, not united (free), or 0. Fruit 1–3 achenes, small, dry, 1-seeded fruits, decaying to free the seed (indehiscent), enclosed in the persistent, hardened, 4-winged calyx-tube. Herbs with leaves divided to the midrib into several pairs of leaflets and 1 terminal one (imparipinnate); and having leafy (foliaceous) stipules joined to the leaf-stalk (petiole).

Common Salad Burnet. (Poterium Sanguisorba, Linn.)—Flowers small, green, tinged with crimson, in dense roundish heads, the upper flowers in the cluster female, with carpels and without stamens; the lower male, with stamens and without carpels (monœcious), or perfect. Sepals 4; petals 0; stamens 20—30 in the lower flowers, with very long, pendulous, red filaments hanging outside the flower-head (exserted) in long tassels (so placing the pollen-bearing anthers where the wind can easily distribute the pollen, and so fertilise the plant), absent in the upper flowers of the head; carpels 1–3, the stigma being tufted and crimson, usually absent in the lower flowers of the head. Fruit of 1–3 achenes, enclosed in the hardened 4-winged calyx-tube; stem 6–18 inches high, woody; leaves divided to the midrib into 5–10 pairs of oval, coarsely toothed (serrate) leaflets with one terminal one (imparipinnate); stipules leafy (foliaceous), attached to the leaf-stalk (petiole). [*Plate* 42.

Common on chalky soils. Dry pastures, borders of fields. June—August. Perennial.

***Prickly Salad Burnet. (Poterium polygamum, Waldst, & Kit.)**—Not a native. A very similar plant to the Common Salad Burnet, having larger and longer flower-heads, larger fruit, with the winged calyx-tube strongly veined and dotted, and taller stems.

Rare. Not a native. On chalky soil, borders of fields, sainfoin fields. June—August. Perennial.

Great Burnet. (Poterium officinale, Hook, fil.)—Flowers small, purplish-brown, in dense oval, long-stalked heads. Sepals 4, purple (petaloid), united into a top-shaped (turbinate), winged tube, and separating into 4 teeth; petals 0; stamens 4, longer than the sepals. Fruit an achene, a small, dry, 1-seeded fruit which decays to free the seed, enclosed in the winged calyx-tube. Stem 1½–4 feet high, branched, woody; leaves divided to the midrib into 4–6 pairs of oblong, toothed (serrate), stalked leaflets, and one terminal one (imparipinnate), all slightly heart-shaped (cordate) at the base; stipules leafy, half-moon shaped.

Common in the midland and northern counties of England; rare elsewhere. June—August. Perennial.

THE SAXIFRAGE FAMILY

[ORDER XXVII. SAXIFRAGEÆ]

THE Saxifrage Family is spread widely over the world, and flourishes in temperate and cool climates. In tropical lands it is only found on mountain heights. The species of Saxifrage native to Great Britain are distinctive by their neat habit; the leaves grow chiefly from the root in rosettes or tufts, and the little clusters of pure regular flowers are lifted up on slender stalks. They are chiefly found on mountains.

The family includes many beautiful flowering trees and shrubs—Deutzias, Syringas (Philadelphuses), American Currants, and Hydrangeas. Innumerable species of Saxifrage are to be met with in rock and Alpine gardens; and several species with edible fruits, the Currants and Gooseberries, are cultivated in our gardens.

SAXIFRAGE. (SAXIFRAGA, LINN.)—Flowers white, yellow, rose-colour, or purple, in clusters, the central flower opening first (cymes). Sepals 5, united at the base into a tube which usually adheres more or less to the seedcase, and separating into 5 teeth, remaining with the fruit (persistent); petals 5, entire; stamens 10, rarely 5; carpels 2, united into a 2-celled seedcase (ovary), and separating into 2 distinct styles, which remain with the fruit (persistent). Fruit a 2-beaked, 2-celled, many-seeded capsule, opening at the top by 2 valves. Herbs or undershrubs with alternate or rarely opposite leaves.

Purple Mountain Saxifrage. (Saxifraga oppositifolia, Linn.)—As just described. The flowers ½ inch across, purple, nearly stalkless, solitary and terminal; the capsule ¼ inch long; the stems prostrate, much branched, forming low, straggling tufts; and the small, oblong, fleshy leaves being crowded together and fringed with white hairs.

Rare. Mountains in Wales, the north of England, and Ireland; common on the higher Scotch mountains. April—May. Perennial.

Clustered Alpine Saxifrage. (Saxifraga nivalis, Linn.)—Flowers ¼ inch across, white, in a compact cluster, on stems 2–6 inches high springing from the root (scapes). Sepals 5, united half way, often tinged with purple; petals 5, spreading, white with 2 greenish dots towards the base; anthers and pistils purple. Fruit an oval capsule, terminating in 2 short beaks; leaves thick, all from the root (radical), roundish or oval, toothed, broader at the tip and narrowing into a short, broad stalk (spathulate).

Rare. Damp Alpine rocks on high mountains in north Wales, the Lake District, Scotland, and on Ben Bulben in Ireland. July—August. Perennial.

Starry Saxifrage. (Saxifraga stellaris, Linn.)—Flowers ⅜ inch across, white, 1–3 in loose clusters (cymes), on stems 2–9 inches high springing from the root (scapes), with a small

leafy bract beneath each. Sepals 5, almost free; petals 5, twice as long as the sepals, white with two yellow spots at the base; stamens 10, anthers red; pistils red. Fruit a capsule ¼ inch long with 2 short, spreading beaks. Leaves all from the root (radical) in a rosette, oblong, or egg-shaped (ovate), tapering at the base, with a few coarse teeth.

Not common. Alpine rocks, by the side of mountain rills, in Wales, the north of England, Scotland, and Ireland. July—August. Perennial.

Common London-pride, None-so-pretty, St. Patrick's Cabbage. (**Saxifraga umbrosa, Linn.**)—Flowers small, pink spotted with a darker red, in a loose, branched, terminal cluster (cyme) on a leafless hairy stalk 6–12 inches high springing from the root (scape). Sepals 5, not united (free), oblong, turned back (reflexed); petals 5, twice as long as the sepals, oval, spreading; stamens 5, with red anthers. Leaves all from the root (radical) in a rosette, thick and leathery, oval, broader at the tip and narrowing to the base (spathulate), coarsely toothed.

Rare. A native in Ireland, and common in County Kerry; an escape from gardens in England and Scotland. June—July. Perennial.

Kidney-leaved London-pride. (**Saxifraga Geum, Linn.**)—A similar plant, differing in having kidney-shaped (reniform) leaves.

Very rare. Mountains and woods in Ireland. June—July. Perennial.

Hairy London-pride. (**Saxifraga hirsuta, Linn.**)—Another similar plant, differing in having more hairy, roundish or oval leaves, longer than broad, not heart-shaped at the base.

Very rare. Mountains in the south-west of Ireland. June—July. Perennial.

Yellow Marsh Saxifrage. (**Saxifraga Hirculus, Linn.**)—Flowers ¾ inch across, yellow spotted with scarlet, solitary or rarely 2 together, terminating a leafy stem. Sepals 5, hardly united, oblong, turned back; petals 5, two or three times as long as the sepals, bright yellow spotted towards the base with scarlet. Capsule nearly 1 inch long, much longer than broad, with 2 short spreading beaks. Stems 4–8 inches high, very leafy, with flowerless shoots at the base; leaves stalkless (sessile), narrow and oblong, alternate.

Rare, local. Wet moors in the north of England, Scotland, and Ireland. July—September. Perennial.

Yellow Mountain Saxifrage. (**Saxifraga aizoides, Linn.**)—Flowers ½ inch across, yellow dotted with red or orange, 1–3 together, terminating a leafy stem. Sepals 5, yellow, almost as long as the petals, united at the base; petals 5, yellow, with red or orange dots. Capsule roundish, ¼ inch across, with 2 short beaks. Stem 5–7 inches long, generally prostrate, with flowerless shoots at the base, and with the leaves stalkless (sessile), narrowly oval or strap-shaped, entire or rarely toothed, and fringed with a few hairs.

Rare. Wet alpine rocks, by mountain rills. June—September. Perennial.

Three-fingered Saxifrage. (**Saxifraga tridactylites, Linn.**)—Flowers minute, numerous, white, in very loose clusters. Sepals 5; petals 5, longer than the sepals; stamens 10. Stem ½–5 inches high, slender, branched on specimens over 1 inch high, reddish, very hairy, with gland-tipped hairs; the leaves entire and narrowly oblong, more frequently broadening at the tip and 3-lobed, covered with gland-tipped hairs, the root-leaves stalked. The whole plant pale green, generally tinged with red. [*Plate* 43.

Common. Walls and dry places. April—July. Annual or biennial.

White Meadow Saxifrage. (**Saxifraga granulata, Linn.**)—Flowers ¾–1 inch across, white, 3–6 together in a terminal cluster (cyme). Sepals 5, covered with gland-tipped hairs; petals 5; stamens 10: styles 2. Capsule with 2 short beaks. Stems 6–18 inches high, erect, simple or occasionally slightly branched, hairy, the hairs being gland-tipped at the top; the leaves kidney-

shaped (reniform), lobed or deeply scalloped, the root and lower leaves on long stalks. The root with numerous, small, round, downy brown bulb [*Plate* 43.

Not uncommon. Meadows and dry banks. April—June. Perennial.

Alpine Brook Saxifrage. (**Saxifraga rivularis, Linn.**)—A similar but much smaller species, with smaller flowers, solitary, or 2 or 3 terminating a stem 2–3 inches long, with entire or 2-cleft bracts at the base of the cluster; the stems 1–3 inches long, prostrate; and the root-leaves deeply 3–5-lobed. The root rarely bearing bulbs.

Very rare. Damp alpine rocks on Highland mountains. August. Perennial.

Drooping Bulbous Saxifrage. (**Saxifraga cernua, Linn.**)—A very similar plant to the last, differing in having a larger, solitary, drooping flower, and scaly bulbs in the axils of the leaves.

Very rare, nearly extinct. On the summit of Ben Lawers. June—August. Perennial.

Tufted Alpine Saxifrage. (**Saxifraga cæspitosa, Linn.**)—Flowers $\frac{3}{8}$ inch across, white, 1–5 in a loose terminal cluster, on stems 2–4 inches high, bearing few leaves. Sepals 5; petals 5; stamens 10; styles 2. Capsule with 2 short erect beaks. Leaves in tufted rosettes, forming bright green cushions, oblong, usually broader at the tip, and 3–5-lobed into blunt segments. The whole plant covered with short, gland-tipped hairs.

Very rare. Alpine rocks on Scotch, Welsh, and Irish mountains. May—July. Perennial.

Sternberg's Saxifrage. (**Saxifraga Sternbergii, Willd.**)—A similar plant, more thickly covered with gland-tipped hairs, and with tufts of leaves lobed into 3–4 lance-shaped, pointed, fringed segments.

Very rare. Ireland. July. Perennial.

Palmate-leaved Mossy Saxifrage. (**Saxifraga dicipiens, Ehrh.**)—A closely allied plant, with tufts of leaves lobed into 3–7 abruptly pointed segments.

Very rare. Alpine rocks on mountains in Carnarvonshire. June—July. Perennial.

Saxifraga grœnlandica, Linn.—Another closely allied plant, with few flowers, and broader leaves, more densely tufted.

Very rare. Ben Lawers. July—August. Perennial.

Hairy Saxifrage. (**Saxifraga hirta, Haw.**)—Flowers large, white, 2–4 together, on stems 3–6 inches high, bearing few leaves. Sepals 5, abruptly pointed (subulate); petals 5, oblong, 3-veined; stamens 10; styles 2. Leaves in tufts, cut into 3–5 fine, bristle-pointed lobes.

Very rare. Mountains in Kerry and Tipperary. July—August. Perennial.

Mossy Saxifrage. (**Saxifraga hypnoides, Linn.**)—Flowers $\frac{1}{2}$–1 inch across, white, 1–8 in a loose cluster, terminating a stem 2–8 inches high, bearing few leaves. Sepals 5, narrow, more or less pointed; petals 5, white; stamens 10; styles 2. The flowering stems erect, the barren stems prostrate, sometimes 2–3 inches long, sometimes in dense tufts; the leaves entire or 3-cleft, fringed with slender, glandular hairs.

Rare. Mountain districts in England, Wales, Scotland, and Ireland. July—August. Perennial.

GOLDEN SAXIFRAGE. (**CHRYSOSPLENIUM, LINN.**)—Flowers minute, yellow, in short, leafy clusters, the central flower opening first (cymes). Sepals 4, rarely 5, united at the base, yellow; petals 0; stamens 8, rarely 10, always double the number of petals; carpels 2, united into a 1-chambered seedcase (ovary), with 2 styles. Fruit a 1-celled capsule, many-seeded, opening at the top by 2 valves. Small, fleshy herbs, with stems usually creeping at the base, then erect, and stalked, scalloped (crenate) leaves, opposite or alternate.

THE SAXIFRAGE FAMILY. (ORDER XXVII. SAXIFRAGEÆ.)

CALYX of 5 or 4 SEPALS, rarely more or only 3, united at the base into a tube (which sometimes adheres to the seedcase) & separating into the same number of teeth.

COROLLA of 5 or 4 PETALS, the same number as the sepals, inserted on the calyx-tube (perigynous), or absent.

STAMENS as many or twice as many as the petals, inserted on the throat of the calyx-tube (perigynous).

PISTIL of 2 CARPELS, rarely 3-5 or more, united into a seedcase (ovary) and separating into as many styles as there are carpels, each style being tipped with a stigma.

FRUIT a many-seeded capsule, 1-celled or with as many cells as carpels, opening at the top by 2 valves.

FLOWERS generally white, in clusters or rarely solitary.

LEAVES alternate or opposite, without stipules.

DISTINGUISHED BY, in the British species, the flowers having the same number of sepals & petals, usually 5, & the same or double the number of stamens, by the carpels being united into a single seedcase & separating into distinct styles.

THREE-FINGERED SAXIFRAGE

SAXIFRAGA TRIDACTYLITES

GOLDEN SAXIFRAGE CHRYSOSPLENIUM ALTERNIFOLIUM

MEADOW SAXIFRAGE

SAXIFRAGA GRANULATA

GRASS OF PARNASSIA

PARNASSUS PALUSTRIS

Parts of Meadow Saxifrage

Common Golden Saxifrage. (**Chrysosplenium oppositifolium, Linn.**)—Flowers small, $\frac{1}{6}$ inch across, stalkless (sessile), in flat terminal clusters (cymes), surrounded by small leaves, which are often yellow. Sepals 4, yellow inside, green outside; petals 0; stamens 8; styles 2. Capsule with 2 short erect beaks. Stem 2–6 inches high, fragile, juicy, branched, prostrate at the roots; leaves opposite, roundish, scalloped (crenate), the lower ones on long stalks, and hairy.

Common. In damp places, by the sides of ditches and streams. April—July. Perennial.

Alternate-leaved Saxifrage. (**Chrysosplenium alternifolium, Linn.**)—A very similar plant, with deeper yellow flowers, and alternate kidney-shaped (reniform) leaves. [*Plate* 43.

Not so common. In damp places, by the sides of ditches and streams. April—July. Perennial.

GRASS-OF-PARNASSUS. (**PARNASSIA, LINN.**)—Flowers large, white, solitary, on slender, erect flower-stalks. Sepals 5, united at the base, remaining with the fruit (persistent); petals 5, thick, veined, white; stamens 5 perfect and 5 imperfect, the imperfect ones (staminodes) bearing numerous thread-like filaments, each gland-tipped; carpels 3–4, uniting into a 1-celled seedcase (ovary), no styles, and crowned with 4 stigmas, star-like. Fruit a capsule, 1-celled, many-seeded, opening at the top by 4 valves. Herbs, growing in bogs, with mostly radical leaves, stalked, entire, roundish or kidney-shaped (reniform).

Common Grass of Parnassus. (**Parnassia palustris, Linn.**)—The only British species (as just described). A most beautiful little plant, with the solitary flowers 1 inch across, of a solid white and strongly veined, on flower-stalks, 8–10 inches high, having one stalkless leaf clasping the stem; the numerous filaments of the imperfect stamens (staminodes) spreading like a fan, and tipped with bright yellow glands; the capsule round; the flower-stems solitary or numerous, rather wiry, angular, and twisted; the leaves egg-shaped (ovate), heart-shaped (cordate) at the base, those from the root on long stalks. [*Plate* 43.

Not common. Bogs, principally in the north. August—September. Perennial.

GOOSEBERRY, CURRANT. (**RIBES, LINN.**)—Flowers greenish, yellow, or reddish, solitary or in clusters in the axils of the leaves. Sepals 4 or 5, united at the base into a tube which adheres to the seedcase, and separating into the same number of teeth which remain with the fruit (persistent); petals the same number as the sepals, very small and scale-like; stamens the same number as the sepals; carpels 2, united into a seedcase, and separating into 2 styles, which are united at the base and tipped with a short stigma. Fruit a pulpy, juicy berry, 1-celled, usually many-seeded, crowned with the faded calyx-teeth. Shrubs, sometimes spiny, with alternate lobed leaves.

***Gooseberry.** (**Ribes Grossularia, Linn.**)—Not a native (as just described). The flowers $\frac{1}{4}$ inch across, greenish, drooping, solitary or 2–3 together in the axils of the leaves; the berry small, yellowish, hairy; 2–4 feet high, branched and bushy, with numerous spines; the leaves small and round, lobed into 3–5 scalloped (crenate) segments.

An escape from cultivation. Hedges and woods. April—May. Shrub.

Red Currant. (**Ribes rubrum, Linn.**)—A similar shrub. The flowers $\frac{1}{4}$ inch across, greenish, several together in drooping or erect clusters; the berries smaller, round, red, always in drooping clusters; 2–9 feet high, much branched and bushy, without prickles; the leaves large. This shrub is the parent of our cultivated Red and White Currants.

Not uncommon in woods in the north of England and in Scotland. April—May. Shrub.

Tasteless Mountain Currant. (**Ribes alpinum, Linn.**)—A very similar shrub to the Red Currant (Ribes rubrum), but with slightly smaller flowers in erect clusters, the flowers on one shrub having no stamens (female), and on another no carpels (male); insipid, scarlet berries; 2–3 feet high; and with smaller, more deeply divided leaves.

Rare. Mountainous woods in the north. April—May. Shrub.

Black Currant. (**Ribes nigrum, Linn.**)—Another similar shrub to the Red Currant, with the flowers $\frac{3}{8}$ inch across, bell-shaped, tinged with dull-purple, in many-flowered, drooping clusters (racemes); the berries black and larger; and the leaves with more pointed lobes, and dotted with glands underneath, which give out a strong perfume when rubbed.

This shrub is the same as our cultivated Black Currant.

Not uncommon, though often an escape from cultivation. Damp woods and thickets. April—May. Shrub.

THE STONECROP FAMILY

[ORDER XXVIII. CRASSULACEÆ]

THE Stonecrop Family has one marked characteristic which separates it from all other orders represented in the British Isles. The leaves and stalks are always thick and fleshy, and the plants live and thrive in the airiest situations, on rocks, walls, and roofs, exposed to the direct rays of the sun. As a matter of fact, these fleshy leaves and stems are composed of cells, filled with liquid food, which has been taken in in wet weather, so in time of drought the plant lives on itself. The starry flowers have their sepals, petals, stamens, and carpels all equal in number, except when there are twice the number of stamens; and the carpels never unite, but form a ring of small fruits (follicles). It is a large family, members of which are found all over the world, especially in South Africa, where they grow in dry situations in which only such fleshy plants can live. In Teneriffe the House-Leek (Sempervivum) grows in prodigal luxuriance, a blaze of yellow over rocks, cliffs, and old houses when in flower.

Many Stonecrops and House-Leeks are used in our gardens to cover stones and walls.

TILLÆA.—Flowers minute, white or rose-colour, growing singly or in small clusters in the axils of the leaves at the top of the stems. Sepals 3 or 4, united at the base; petals 3 or 4, not united (free); stamens 3 or 4; carpels 3 or 4, not united, each with a seedcase terminating in a short style, on the inner surface of which at the top is the stigma. Fruit of 3 or 4 follicles together, each 2- or many-seeded, opening down the inner surface. Very small herbs, with entire, opposite leaves.

Mossy Tillæa. (Tillæa muscosa, Linn.)—The only British species (as just described). Flowers very minute and numerous, solitary in the axils of the leaves. Sepals 3, pointed, reddish; petals 3, white; stamens 3; carpels 3. Fruit 3 follicles together, each having 2 minute seeds. Stems $\frac{1}{2}$–2 inches long, prostrate, much branched, slender, without hairs, reddish, and crowded with flowers; the leaves entire and opposite.

Rare. Sandy places in the south and south-east of England. June—July. Annual.

PENNYWORT. (COTYLEDON, LINN.)—Flowers bell-shaped (campanulate) or tubular, in terminal clusters, sometimes spike-like (racemes). Sepals 5, united at the base; petals 5, united into a bell-shaped or tube-like corolla with 5 teeth; stamens 10, inserted on the base of the corolla-tube, to which they adhere. Carpels 5, not united. Fruit of 5 follicles, many-seeded, opening down the inner surface. Herbs or shrubs, with alternate fleshy leaves.

Wall Pennywort. (Cotyledon Umbilicus, Linn.)—The only British species (as just described). The numerous flowers shortly stalked, tubular, drooping, yellowish-green, in a spike-like cluster (raceme); the stem 6–12 inches high, erect, simple or slightly branched at the base, thick and fleshy; and the leaves of the root (radical) and lower stem on long stalks,

all round, scalloped (cernate), with the stalk coming from the under-side near the centre (peltate). [*Plate* 44.

Not uncommon. Rocks and walls in southern and western England. June—August. Perennial.

STONECROP. (SEDUM, LINN.)—Flowers yellow, rose-colour, purple, or white, in flat terminal, clusters (corymbs or cymes). Sepals usually 5, rarely 4, 6, or 8, united at the base; petals usually 5, rarely 4, 6, or 8, not united (free); stamens usually 10, rarely 8, 12, or 16, double the number of petals; carpels usually 5, rarely 4, 6, or 8, the same number as the petals. Fruit of 5 many-seeded follicles. Juicy herbs, with usually alternate and stalkless fleshy leaves.

Rose-root. (Sedum roseum, Scop.)—Flowers $\frac{1}{8}$ inch across, without stamens (female) on one plant and without carpels (male) on another (dicœcious), yellow or rarely purplish, in a compact terminal cluster, the central flower opening first (cyme). Sepals 4, narrow, often purplish; petals 4, pointed, yellow or purplish; stamens 8 or 0; follicles 4 or 0. Stem 6–12 inches high, erect, stout, fleshy, simple, very leafy at the top; the leaves stalkless (sessile), oblong, slightly toothed, alternate, crowded. The thick root scented like rose-water.

Rare. Mountains in Wales, the north of England, Scotland, and Ireland. June—August. Perennial.

Orpine, Live-long. (Sedum Telephium, Linn.)—Flowers crimson-purple, in clusters with the central flower opening first, forming a dense terminal mass (corymb). Sepals 5, small, pointed; petals 5, pointed; stamens 10; follicles 5. Stem 1–2 feet high, erect, hard, and leafy; the leaves stalkless, egg-shaped (ovate) or oblong, toothed (serrate); and the root thick.

Not uncommon, though often an escape from gardens, in which it is much cultivated. Waysides, bushy places. July—August. Perennial.

Hairy Stonecrop. (Sedum villosum, Linn.)—Flowers $\frac{1}{4}$ inch across, few, white tinged with pale-purple, terminating the stem and branches in an irregular forked cluster. Sepals 5, egg-shaped; petals 5, tips pointed; stamens 10. Follicles 5, with a short, straight beak. Stem 3–6 inches high, erect, nearly simple, leafy, covered with short, gland-tipped hairs; the leaves stalkless, narrowly oblong, and thick.

Rare. Damp places in hilly districts in the north of England and Scotland. June—July. Annual.

White Stonecrop. (Sedum album, Linn.)—Flowers $\frac{1}{5}$ inch across, white, in a much branched terminal cluster (cyme or corymb). Sepals 5, green; petals 5, pointed, pure white; stamens 10, yellowish; carpels 5, green or pink, terminating in a long beak. Stem 4–10 inches high, erect, smooth, leafy; the leaves stalkless, oblong or round, $\frac{1}{2}$ inch long, very fleshy and juicy.

Very rare, probably only truly native on the Malvern Hills, but occurring in the north of England, Wales, and the Highlands. July—August. Perennial.

***Thick-leaved Stonecrop. (Sedum dasyphyllum, Linn.)**—Not a native. Flowers $\frac{1}{3}$ inch across, few, white streaked with rose-colour, in forked terminal clusters. Sepals 5; petals 5, sharply pointed, white with the outside streaked with rose-colour; stamens 10, with reddish anthers; carpels 5, ending in a rather long beak. Stem 2–3 inches high, hairy, much branched at the base, with many barren shoots on which the leaves are short, thick, almost round, crowded to overlapping; leaves stalkless, oval to roundish, thick and fleshy, with a bluish bloom, sometimes tinged with pink, thickly clothed with gland-tipped hairs.

Rare. Walls and rocks, west of England. June—July. Perennial.

English Stonecrop. (Sedum anglicum, Huds.)—Flowers $\frac{1}{3}$ inch across, few, white tinged with pink, in short, forked, irregular clusters. Sepals 5; petals 5, pointed; stamens 10,

THE STONECROP FAMILY

(ORDER XXVIII. CRASSULACEÆ)

CALYX of usually 5 SEPALS, sometimes 3-30, united at the base, remaining with the fruit, inserted below the seedcase.

COROLLA of the same number of PETALS as sepals, inserted on the base of the calyx (perigynous).

STAMENS as many or twice as many as the petals, inserted with the petals on the base of the calyx-tube (perigynous).

PISTIL of as many CARPELS as there are petals, not united.

FRUIT of as many follicles as there are carpels, each opening along its inner edge and containing 2 rows of seeds.

FLOWERS in clusters (cymes or racemes).

STEMS juicy and fleshy (succulent).

LEAVES fleshy, undivided, no stipules.

DISTINGUISHED BY the starry flowers, the sepals, petals & carpels being equal in number, with the same or twice the number of stamens, & by the thick, fleshy stems & leaves.

COMMON HOUSE-LEEK,

BITING STONECROP, SEDUM ACRE.

sepals

2 petals & 4 stamens

ENGLISH STONECROP

SEDUM ANGLICUM.

pistil

fruit

Parts of the Biting Stonecrop.

SEMPERVIVUM TECTORUM.

WALL PENNY-WORT, COTYLEDON UMBILICUS.

with red anthers; carpels 5, pink, ending in a rather short beak. Stems 2–3 inches high, tufted, much branched, often red, leafy, with numerous barren shoots, growing in dense masses; the leaves small, oblong, fleshy, stalkless, much crowded, overlapping on the barren shoots, with a blunt spur at the base on the under-side, often tinged with red. [*Plate* 44.

Local. Common in Wales, the west coast of Scotland, and Ireland, especially near the sea, on rocks and walls. June—August. Perennial.

Biting Stonecrop, Wall-pepper. (**Sedum acre, Linn.**)—Very similar to the English Stonecrop. Differing in having yellow flowers, and thicker, more densely crowded leaves with a short spur against the stem. The leaves are very acrid to the taste. [*Plate* 44.

Common. Rocks, walls, sandy ground. June—July. Perennial.

***Tasteless Yellow Stonecrop.** (**Sedum sexangulare, Linn.**)—Not a native. Distinguished from the Biting Stonecrop (Sedum acre) by its pointed sepals, narrower petals, and longer leaves growing in 6 distinct rows up the stem; and by its less acrid flavour.

Very rare. Not native. Old walls, chiefly in Kent. July—August. Perennial.

Rock Stonecrop. (**Sedum rupestre, Linn.**)—Flowers larger than in any other British species, yellow, in a terminal cluster formed by 4–8 curved branches, each bearing 3–6 stalkless flowers. Sepals 5; petals 5; stamens 10; carpels 5. Stems 6–10 inches high, purplish-red, branched, with barren shoots; the leaves crowded, stalkless, narrow, thick, flattened, pointed at the tip more or less abruptly, ascending; stem and leaves with a bluish bloom.

Rare. Usually an escape from gardens. Truly wild at Bristol, Cheddar, Great Orme's Head. June—July. Perennial.

***Recurved Yellow Stonecrop.** (**Sedum reflexum, Linn.**)—Not a native. A very similar species to the last. The flowers $\frac{1}{2}$ inch across, bright or pale yellow; the sepals, petals, and carpels very often 6 in number, when the stamens are 12; the stems taller, 6–12 inches high, slender, tough; and the leaves spreading or turned back (reflexed), crowded, cylindrical, and abruptly pointed at the tip (mucronate).

Rare. An escape from gardens. Walls, dry banks, housetops. July—August. Perennial.

Forster's Stonecrop. (**Sedum Fosterianum, Sm.**)—Another very similar species to the Rock Stonecrop (Sedum rupestre), having roundish flower-clusters and bright green leaves.

Rare. Wet rocks in Wales, Shropshire, and Somerset. June—July. Perennial.

***HOUSE-LEEK.** (**SEMPERVIVUM, LINN.**)—Flowers in terminal clusters, yellow, rose-colour, purple, or white. Sepals 6–20, united at the base; petals 6–20, as many as the sepals; stamens twice as many as the petals, in 2 rows, half usually without anthers; carpels as many as the petals. Fruit clusters of as many follicles as there are carpels, many-seeded, opening down the inner edge. Fleshy herbs, with dense rosettes of oblong, fleshy leaves.

***Common House-Leek.** (**Sempervivum tectorum, Linn.**)—Not a native. Flowers $\frac{3}{4}$–1 inch across, shortly-stalked, rose streaked with crimson, in a terminal branched cluster (cyme). Sepals 12, pointed; petals 12, pointed; stamens 24, with crimson filaments, 12 without anthers; carpels 12, dull rose-colour, becoming in fruit 12 follicles. Stem 9 inches to 2 feet high, thick, with barren shoots rising in the axils of the lower leaves; the leaves in rosettes, and sparingly up the stalk, oblong, abruptly pointed (mucronate), edged with thick hairs, otherwise smooth, very fleshy, green edged with purple-red. [*Plate* 44.

Rare. Not native. Roofs of cottages and old walls. July—August. Perennial.

THE SUNDEW FAMILY

[ORDER XXIX. DROSERACEÆ]

THIS is a small, though very interesting, family of marsh plants, found all over the world. Its peculiarity exists in its leaves, which are fringed, and more or less covered with gland-tipped hairs. These glands give out a sticky fluid, which clings to any fly that happens to alight and prevents its escape. Meanwhile the hairs bend down over the fly and complete the capture, only turning back when the nutriment desired has been absorbed from the victim. Experiments have been made which prove that these plants thrive better when thus supplied with animal food. In Britain we only possess one genus of very small plants, the Sundew (Drosera), but other genera are to be found all over the world where there is bog country.

South Carolina is the home of the Venus' Fly-trap (Dionæa muscipula), a most curious plant, with leaves which shut up with a spring directly a fly touches the inside, the powerful hairs fringing the leaf interlocking and securing the fly. In this plant the glands are on the surface of the leaf, not on the hairs.

SUNDEW. (DROSERA, LINN.)—Flowers small, white, pink or pale-purple, in one-sided clusters (racemes), coiled in bud, on a leafless stalk from the root (a scape). Sepals 5, free; petals 5, free and spreading; stamens 5; carpels 3–5, united into the seedcase and separating into 3–5 styles, which are each 2-cleft, and so appear twice as many. Fruit a many-seeded, 1-celled capsule, opening by the same number of valves as there are styles. Stemless bog plants, with a rosette of long-stalked leaves tinged with red, and covered with red, gland-tipped hairs, which glisten like dew, and so give the name to the plants. These glands send out a sticky fluid that, clinging to any fly that happens to alight, prevents its escape; the hairs then turn down over the fly, and its juices are absorbed by the plant.

Round-leaved Sundew. (Drosera rotundifolia, Linn.)—As just described. Flowers small, white, with the petals a little longer than the sepals, in 1-sided clusters, coiled in bud, on a leafless stalk from the root (scape), 2–6 inches high, much longer than the leaves, never opening except in very sunny weather. Fruit an oval capsule, about as long as the sepals, many-seeded; leaves roundish and spreading. [*Plate* 45.

Common on spongy bogs and wet heaths. July—August. Perennial.

Larger Long-leaved or English Sundew. (Drosera anglica, Huds.)—A very similar species, differing in having rather larger flowers, on shorter stalks, the capsules longer than the sepals, and much longer, narrower, and more erect leaves.

Not common. Found with the Round-leaved Sundew in bogs and heaths. July—August. Perennial.

THE SUNDEW FAMILY. (ORDER XXIX. DROSERACEÆ.)

CALYX of 5-8 SEPALS, not united (free), remaining with the fruit (persistent), inserted below the seedcase (hypogynous).

COROLLA of 5-8 PETALS, not united (free), overlapping in bud (imbricated), inserted below the seedcase (hypogynous).

STAMENS 5-8, rarely more, inserted below the seedcase (hypogynous).

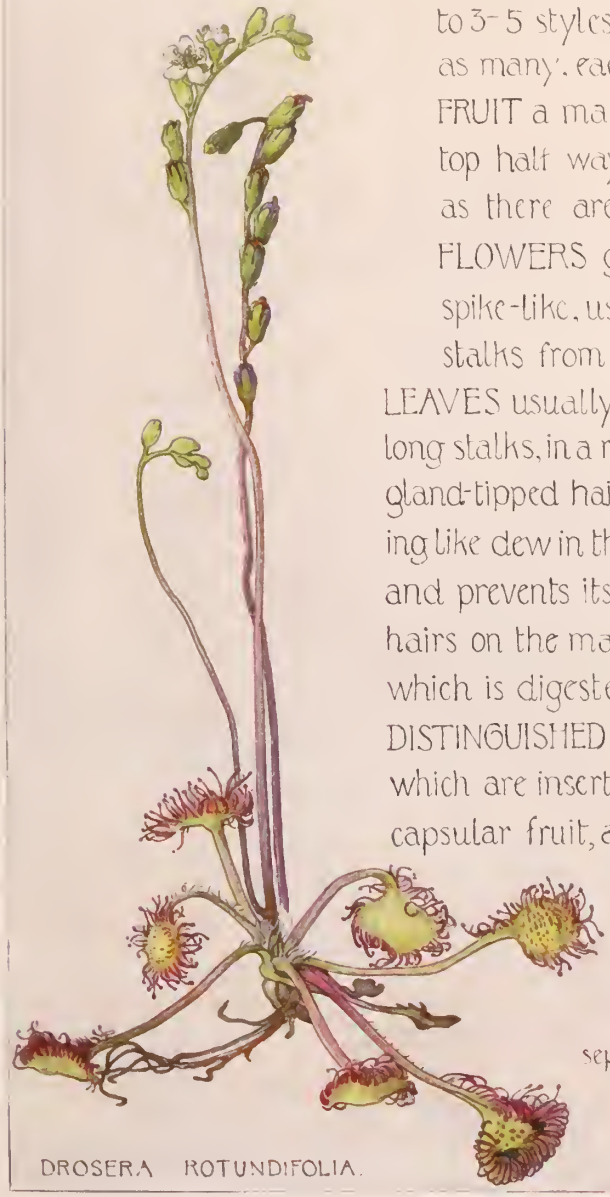
PISTIL of 3-5 CARPELS, united into a 1-celled seedcase (ovary), and separating into 3-5 styles, each 2-cleft and so appearing twice as many, each branch crowned with a stigma.

FRUIT a many-seeded capsule, opening from the top half way down by the same number of valves as there are carpels.

FLOWERS growing in terminal clusters, sometimes spike-like, usually coiled up in bud, on long leafless stalks from the root (scapes), rarely solitary.

LEAVES usually all growing from the root (radical), on long stalks, in a rosette, the upper side covered with short gland-tipped hairs, which send out a sticky fluid glistening like dew in the sun, this adheres to any fly that alights and prevents its escape, while the long gland-tipped hairs on the margin slowly close down over the victim, which is digested by the plant.

DISTINGUISHED BY the 5 sepals, 5 petals and 5 stamens, which are inserted below the seedcase (ovary), by the capsular fruit, and above all by the peculiar leaves with gland-tipped hairs. These plants are only found on boggy land.



DROSERA ROTUNDIFOLIA.

Parts of the Round-leaved Sundew.

Lesser Long-leaved Sundew. (**Drosera intermedia, Hayne.**)—A very similar species to the last, but smaller, the flowers scarcely larger than those of the Round-leaved Sundew; the capsule longer than the sepals, like those of the Larger Long-leaved Sundew; and the leaves also similar, though not quite so long.

Not common. Found with the Round-leaved Sundew in bogs and on heaths. July—August. Perennial.

THE LOOSESTRIFE FAMILY

[ORDER XXXI. LYTHRARIEÆ]

THIS is a fairly large order, distributed over most parts of the world, thriving in the tropics, where its members are generally trees and shrubs with very gorgeous flowers. Many species are semi-aquatic.

Some of the Lagerstromias, beautiful flowering trees and shrubs of India and China, are occasionally cultivated in our gardens, as are many species of Cuphea, natives of America.

Several of the tropical members yield dyes. Lawsonia inermis is the Henna or Alkanna with which the Egyptian ladies have for ages stained their nails an orange yellow.

WATER PURSLANE. (PEPLIS, LINN.)—Flowers small, nearly stalkless, solitary, in the axils of the leaves. Sepals 12, united into a bell-shaped tube (campanulate), and separating into 12 teeth in two rows, remaining with the fruit (persistent); petals 6, very small, inserted on the top of the calyx-tube, frequently absent; stamens 6–12, inserted on the top of the calyx-tube; carpels 2, united into a seedcase, a single style, and a clustered stigma. Capsule round, 2-celled, many-seeded, splitting irregularly. Small herbs, with opposite, entire, oval leaves.

Water Purslane. (Peplis Portula, Linn.)—The only British species (as just described). The flowers inconspicuous, the petals pink when present; the stems 2 inches–1 foot long, 4-angled. The whole plant is smooth (glabrous), fleshy, dull green and generally tinged with red. [*Plate* 46. Uncommon. Wet places. July—August. Annual.

PURPLE LOOSESTRIFE. (LYTHRUM, LINN.)—Flowers large, stalkless, purple, solitary, or in clusters in the axils of the leaves, forming long, leafy spikes. Sepals 8–12, united into a tube and terminating in the same number of teeth, in 2 rows; petals 4–6, inserted on the top of the calyx-tube; stamens 2–12, inserted about the middle of the calyx-tube; carpels 2, united into a seedcase, a long style, and a clustered stigma. Capsule oval or cylindrical, 2-celled, many-seeded, opening at the top by 2 valves or splitting irregularly. Herbs or shrubs, with entire leaves.

Purple Loosestrife. (Lythrum Salicaria, Linn.)—As just described. The flowers large, $\frac{3}{4}$–1 inch across, bright reddish-purple with yellow or violet anthers, in clusters in the axils of the leaves, forming long leafy terminal spikes; the capsule oval; the stem 2–5 feet high, erect, angled, tough, and usually much branched; the leaves entire, lance-shaped, stalkless (sessile), clasping the stem (amplexicaul,) half heart-shaped (sub-cordate) at the base, from 2–6 inches long, opposite or in rings (whorls) of 3 or 4. The length of the stamens and styles differs in different plants all growing together, the long stamens fertilising the long styles, the medium-lengthed stamens fertilising the

LOOSESTRIFE FAMILY. (ORDER xxxi, LYTHRARIEÆ.)

CALYX of 4-10 SEPALS, as many or twice as many as the petals, united into a tube & separating into 4-10 teeth, when more than 8 in 2 rows, remaining with the fruit (persistent), inserted under the seedcase (hypogynous).

COROLLA of 4-5 PETALS, rarely more, crumpled in bud, inserted on the top of the calyx-tube (perigynous), sometimes absent.

STAMENS as many or twice or thrice as many as the petals, inserted in the upper part of the calyx-tube (perigynous), usually below the petals.

PISTIL of 2-6 CARPELS, united into a seedcase (ovary) & terminating in a single style sometimes very short, & a simple or 2-lobed stigma.

FRUIT a capsule with as many cells as carpels, often 1-celled by the drying up of the partitions, many-seeded, opening from the top by valves, enclosed in, but not united with the calyx-tube.

FLOWERS white, yellow, bluish or red, solitary or in clusters (racemes, spikes, etc.).

LEAVES usually opposite, entire, & without stipules.

DISTINGUISHED BY the sepals being twice as many as the petals (in the British species), the stamens being inserted in the calyx-tube, which encloses but is not united with the fruit, by the entire leaves, the lower ones always opposite.

PURPLE LOOSESTRIFE.

LYTHRUM SALICARIA.

PEPLIS PORTULA.

WATER PURSLANE.

Parts of the Purple Loosestrife.

calyx petal calyx & stamens pistil fruits

medium-lengthed styles, and the short stamens fertilising the short styles. The pollen is, as usual, carried by insects. [*Plate* 46.

Common. Moist places, wet ditches, &c. July—September. Perennial.

Hyssop-leaved Purple Loosestrife. (Lythrum Hyssopifolia, Linn.)—A much smaller plant, the flowers pale mauve, with only 6 stamens, solitary, in the axils of the leaves ; the capsule cylindrical ; the stems smaller, 6–12 inches long, procumbent, with small, alternate, narrow leaves.

Very rare. In moist places, especially in places over which the water occasionally flows. June—September. Annual.

THE WILLOW-HERB FAMILY

[ORDER XXXII. ONAGRARIEÆ]

CALIX of 4, rarely 2, **SEPALS**, united into a tube and separating into the same number of teeth, the tube united to and lengthening with the seedcase (ovary).

COROLLA of as many **PETALS** as sepals, occasionally more, inserted in the throat of the calyx-tube (perigynous), rarely absent.

STAMENS 2–8, as many or twice as many as the petals, rarely only half as many, inserted with the petals (perigynous).

PISTIL of 2–4 **CARPELS**, in the British species, united into a seedcase (ovary), a thread-like style, and a 2–4-lobed stigma.

FRUIT, in the British species, a capsule, 2–4-celled, having as many cells as there are carpels, with 1 or many seeds in each cell, generally opening from the top by as many valves as there are cells.

FLOWERS conspicuous; usually pink or yellow, solitary in the axils of the leaves, forming terminal spikes.

LEAVES usually opposite and undivided (simple), toothed (serrate), and without stipules.

DISTINGUISHED BY, in the British species, the united carpels, the capsule being situated underneath the rest of the flower, the sepals and petals being 4 or 2 in number, and the stamens the same or double the number.

THE marked characteristic of this family is that the parts of the flower are in twos and fours; 4 or 2 sepals, petals, stamens, and carpels, the stamens being sometimes double the number of the other parts. In the British species another characteristic is the capsular fruit, which is united with the calyx-tube and situated beneath the rest of the flower (an inferior fruit).

The members of this family are principally herbs, in rare instances trees or shrubs, and are noted for their beauty, not for their use. They are distributed over the whole world, preferring temperate regions, and are most profusely found in North and South America. The beautiful varieties of Evening Primrose (Œnothera) and Clarkia come to us principally from North America, and the exquisite Fuchsias, whose fruits are fleshy, insipid berries, are natives of South America and New Zealand.

WILLOW-HERB. (EPILOBIUM, LINN.)—Flowers purple, rose- or flesh-colour, or white, solitary in the axils of the leaves, forming a small, loose, terminal cluster or a spike-like cluster. Sepals 4, united into a tube and separating into 4 teeth, the tube joined to the seedcase (ovary); petals 4, usually notched; stamens 8; carpels 4, united into a long 4-celled seedcase, with a thread-like style, and 4 stigmas spreading star-like or united into a club. Fruit a capsule, 4-celled, very long and slender, many-seeded, opening from the top by 4 curved-back valves. Herbs with opposite or irregularly alternate leaves.

GREAT
HAIRY
COMMON
EVENING
PRIMROSE.
ŒNOTHERA
BIENNIS.
WILLOW
HERB.
EPILOBIUM
HIRSUTUM.
SQUARE
STALKED
WILLOW-HERB.
ROSE
BAY
EPILOBIUM
ANGUSTIFOLIUM.
COMMON
ENCHANTER'S
NIGHTSHADE.
CIRCÆA
LUTETIANA.
EPILOBIUM
ADNATUM.
Parts of the Great
calyx
petal
stamens
pistil
Hairy Willow-herb.
fruit

This is a bewildering genus, as there are so many intermediate forms uniting the species; the London Catalogue gives 33 varieties of the following 12 species.

Rose-bay or French Willow. (Epilobium angustifolium, Linn.)—Flowers large, 1 inch across, rose-coloured, in a terminal spike-like cluster. Sepals 4, united, separating into 4 teeth; petals 4, entire, clawed, unequal in size; stamens 8, bent downwards; stigmas 4, star-like. Capsule 1–2 inches long, hairy. Stem 2–4 feet high, erect and seldom branched; the leaves lance-shaped, alternate, shortly stalked, entire or slightly toothed. The roots creeping. [*Plate* 47.

Not uncommon, but often an escape from gardens. Damp woods. July—August. Perennial.

Great Hairy Willow-herb, Codlins and Cream. (Epilobium hirsutum, Linn.)—Flowers large, 1 inch across, fragrant, rose-coloured, in loose clusters terminating the stem and branches. Sepals 4; petals 4, deeply notched, all equal; stamens 8, erect; stigmas 4, star-like. Capsule 2–3 inches long, 4-sided, very hairy. Stem 2–5 feet high, branched and softly hairy; the leaves stalkless and lance-shaped, clasping the stem at the base, opposite, toothed, softly hairy. [*Plate* 47.

Common. Sides of streams, ditches, &c. July—September. Perennial.

Small-flowered Hairy Willow-herb. (Epilobium parviflorum, Schreb.)—A similar but much smaller plant in every way, with pale pink flowers, $\frac{3}{8}$ inch across, star-like stigmas, erect buds, stem 1–2 feet high, downy, usually unbranched, and leaves lance-shaped, downy, mostly alternate, and shortly stalked.

Common. Damp places. July—August. Perennial.

Broad Smooth-leaved Willow-herb. (Epilobium montanum, Linn.)—Very similar to the Small-flowered Hairy Willow-herb (Epilobium parviflorum), but with slightly smaller flowers, star-like stigmas, drooping buds, smooth stems 6 inches to 1 foot high, and egg-shaped leaves, smooth, and usually opposite.

Very common. Dry places. June—August. Perennial.

Spear-leaved Willow-herb. (Epilobium lanceolatum, Seb. and Maur.)—A rather larger but similar plant to the Small-flowered Hairy Willow-herb. The flowers again a little smaller, deeper rose, with star-like stigmas and drooping buds; the stem erect, slightly branched, slightly 4-angled, hairy; and the leaves lance-shaped, alternate, only the lower ones opposite.

Rare. Stony places in the south. July—September. Perennial.

Pale Smooth-leaved Willow-herb. (Epilobium roseum, Schreb.)—Very similar to the Small-flowered and the Broad Smooth-leaved Willow-herbs. The flowers very small, $\frac{1}{6}$ inch across or less, whitish with rose-coloured streaks, club-shaped stigmas, and drooping buds; the capsules 1–2 inches long; the stem 1–2 feet high, square, fragile, with 2 sharp and 2 blunt angles; the leaves long-stalked, egg-shaped (ovate) to narrowly oblong. Less hairy than the preceding species.

Rare. Damp woods and cultivated ground. July—September. Perennial.

Square-stalked Willow-herb. (Epilobium adnatum, Grisebach.)—Flowers small, $\frac{1}{4}$ inch across, pale lilac, in terminal leafy clusters; buds erect; petals deeply notched; stigma club-shaped; capsules very long, $2\frac{1}{2}$–$3\frac{1}{2}$ inches long. [As described in the genus Epilobium]. The stem 1–2 feet high, erect, square; and the leaves narrowly oblong, toothed, stalkless, shiny, yellowish-green. [*Plate* 47.

Rare. Damp places. July—August. Perennial.

Short-podded Square-stalked Willow-herb. (Epilobium obscurum, Schreb.)—A very similar plant, with numerous deeper flowers; shorter capsules; and broader, stalkless, dull leaves.

Common. Damp places. July—August. Perennial.

Epilobium Lamyi, F. Schultz. Another similar plant to the Square-stalked Willow-herb, with larger flowers and shortly-stalked leaves, which are shining and of a darker green.

Very rare. Damp places. June—July. Perennial.

Narrow-leaved Marsh Willow-herb. (Epilobium palustre, Linn.)—Flowers small and pale pink; the petals notched, and the stigmas club-shaped; the buds drooping. [As described in the genus Epilobium.] The stem 6–18 inches high, round, with thick curled hairs; the leaves narrowly lance- or egg-shaped, toothed, and stalkless.

Common. Bogs and wet places. July—August. Perennial.

Chickweed-leaved Willow-herb. (Epilobium alsinefolium, Vill.)—The flowers $\frac{1}{3}$ inch across, few, bright rose-colour, with notched petals, club-shaped stigmas, and drooping buds; the stems 3 inches to 1 foot long, thick, brittle, with 2 lines of downy hairs, growing in dense masses; the leaves egg-shaped (ovate), pointed, toothed, stalked, smooth, shining, mostly opposite.

Rare. By mountain streams and springs. July—September. Perennial.

Alpine Willow-herb. (Epilobium anagallidifolium, Lam.)—Flowers very small, $\frac{1}{6}$ inch across, pale rose-colour, few, often solitary, drooping in bud; the 4 sepals nearly as long as the 4 notched petals; the stigmas club-shaped; the stems 2–5 inches high, much branched at the base and smooth; the leaves mostly opposite, small, egg- or lance-shaped, blunt, stalked, and slightly hairy.

Rare. By mountain streams and springs. July—August. Perennial.

ISNARDIA. (LUDWIGIA, LINN.)—Flowers small, yellow or purple, solitary in the axils of the upper leaves. Sepals 4, united, separating into 4 teeth; petals 4 or 0; stamens 4; carpels 4, uniting into a 4-celled seedcase (ovary), one style, and a 4-lobed stigma. Fruit a capsule, 4-celled and many-seeded. Marshy herbs, with undivided (simple), entire leaves.

Marsh Isnardia. (Ludwigia apetala, Wallr.)—The only British species (as just described). The flowers minute, without petals, and stalkless; the capsule broadly oblong, bluntly 4-sided, with many seeds; the stems 2 inches to 1 foot long, branched, smooth, and tinged with red, creeping in mud or floating in water, and throwing out roots at the nodes; the leaves opposite, egg-shaped, pointed and entire, shortly-stalked, and shining.

Resembling the Water Purslane (Peplis Portula) in growth and colour, though a much larger plant.

Very rare. Boggy pools and wet ditches in Hampshire, Sussex, and Jersey. June—July. Perennial.

***EVENING PRIMROSE. (ŒNOTHERA, LINN.)**—Not a native genus. Flowers large and showy, yellow, white, or pink, usually in terminal clusters or spikes. Sepals 4, uniting into a long tube prolonged above the seedcase and forming a honey cell, separating into 4 teeth; petals 4; stamens 8; carpels 4, uniting into a 4-celled seedcase, a thread-like style, and a 4-lobed stigma. Fruit a dry, oval, 4-angled capsule, 4-celled, with numerous seeds, opening by 4 valves. Herbs or undershrubs with alternate leaves.

***Common Evening Primrose. (Œnothera biennis, Linn.)**—Not a native, though now quite established in several counties in England and Wales. As just described. The flowers large, $1\frac{1}{4}$–$1\frac{3}{4}$ inches across, bright lemon-yellow, in a terminal leafy spike; the capsule oblong, tapering to the apex; the stem 2–3 feet high, stout and woody; the leaves lance-shaped,

slightly hairy and wavy, with short stalks and thick white mid-ribs, the lower leaves sometimes 6–12 inches long. [*Plate* 47.

Rare. A North American plant, naturalised in a few sandy places in England and Wales. July—September. Biennial.

***Fragrant Evening Primrose.** (**Œnothera odorata, Jacq.**)—Not a native. A very similar species, differing in having deeper yellow flowers fading to orange-scarlet, a larger capsule broader near the apex, brighter green, narrow, wavy leaves, the lower ones being remotely and sharply toothed.

Rare. A Patagonian plant, also naturalised in a few sandy places in England and Wales. July—September. Biennial.

ENCHANTER'S NIGHTSHADE. (**CIRCÆA, LINN.**)—Flowers small, white or flesh-colour, in delicate terminal clusters (racemes). Sepals 2, united into a tube which adheres to the seedcase, and separating into 2 long teeth; petals 2, deeply notched; stamens 2; carpels 2, uniting into a 2-celled seedcase, a thread-like style, and a thick 2-lobed stigma. Fruit a capsule, round or oblong, covered with hooked bristles, 2-celled, with 1 seed in each cell. Delicate, graceful herbs, with opposite, egg-shaped (ovate), finely toothed (serrate) leaves.

Common Enchanter's Nightshade. (**Circæa lutetiana, Linn.**)—As just described. Flowers white or flesh-colour with pink stamens, in light, graceful, terminal clusters (racemes); the capsule roundish and covered with hooked bristles; the stem 1–2 feet high, erect, fragile, hairy, and slightly branched; the leaves broadly egg- or heart-shaped and slightly toothed, on long stalks. [*Plate* 47.

Common. In damp woods and stony places. June—August. Perennial.

Alpine Enchanter's Nightshade. (**Circæa alpina, Linn.**)—A very similar plant, but smaller in all ways, with less bristly capsules, usually with only 1 cell and seed, and heart-shaped, more deeply toothed leaves.

Rare. Woods and stony places in mountainous districts. June—August. Perennial.

THE GOURD FAMILY

[ORDER XXXIII. CUCURBITACEÆ]

THE plants belonging to this order are herbs characterised by their trailing or climbing habit. They have long, juicy stems, alternate, rough, usually lobed leaves, and climb by means of tendrils opposite each leaf. The parts of the flowers are in fives, and both stamens and carpels are never present in the same flower (diœcious).

The Gourd Family is a very important one. It is found chiefly in the tropics, especially in Africa, and is represented in Britain by one species only. Many foreign species are largely cultivated for the use of their fruits, such as the Cucumber (Cucumis sativus), Melon (Cucumis melo), Water Melon (Cucumis citrullus), Vegetable Marrow (Cucurbita ovitera), Gourds, and Pumpkins. Taken as a whole, however, the members of this tribe are highly poisonous, the exception being when the fruits are edible. Some are violent drugs, Colocynth (Citrullus Colocynthis) and the Squirting Cucumber (Momordica Elaterium) proving useful in medicine. Others are most interesting because of the shape of their fruits. The Bottle Gourd (Cucurbita lagenaria) is shaped as a flask, and when the pulpy inside is removed is used as a water-bottle. The inside, however, is highly poisonous, and the hard rind has to be carefully cleansed before it can be so used. The Snake Cucumber (Momordica cylindrica) has a cucumber-shaped fruit, many feet long, which is curled and twisted like a snake.

The Passion flowers (belonging to the order Passifloraceæ) and the Cactuses (belonging to the order Cactaceæ) are in near affinity to the Gourd Family. Neither of these orders has any native representative in the British Isles, but both are largely cultivated in our greenhouses.

WHITE BRYONY. (BRYONIA, LINN.)—Flowers whitish, with green veins, in small clusters, never having both stamens and carpels in the same flower, sometimes with the flowers without carpels (male) on one plant and those without stamens (female) on another (diœcious), and sometimes with both male and female flowers on the same plant (monœcious). Sepals 5, united into a bell-shaped tube combined with the seedcase, and separating into 5 teeth; petals 5, united at the base; stamens 5 (or 0 when the flower has carpels), united into 3 bundles, the filaments short and thick, more or less united, the anthers curved and wavy; carpels 3 (or 0 when the flower has stamens), with 3 thick, short styles and 3 irregularly cut, velvety stigmas. Fruit a round or oval juicy berry, black or red, usually 1-celled when ripe, containing few seeds, decaying to free the seeds (indehiscent). Slender, climbing herbs, with alternate leaves lobed towards the base into 5 segments (palmatifid), and with a tendril, usually not branched, opposite each leaf

THE GOURD FAMILY.

female flower

pistil

male flower

calyx

corolla

stamens

seed

section of fruit.

(ORDER XXXIII, CUCURBITACEÆ.)

CALYX of 5 SEPALS, united into a bell-shaped tube which is combined with the seedcase, & separating into 5 teeth.

COROLLA of 5 PETALS, united at the base and spreading into 5 lobes, usually noticeably veined, inserted above the calyx-tube (epigynous).

STAMENS 5 or 0, only present in the male flowers (those that have no carpels), usually united into 3 bundles, 2 of 2 stamens each, & the 3rd of the remaining 1, the filaments short & thick, more or less united at the base, the anthers curved & wavy, inserted on the petals & calyx-tube (epigynous).

PISTIL of 3 or 5 CARPELS, or 0, only present in the female flowers (those that have no stamens), united into a seedcase, a short thick style & 3 or 5 thick lobed, spreading, velvety stigmas.

FRUIT a juicy berry, round or oval, usually 1-celled when ripe owing to the disappearance of the partitions of the carpels, few-seeded, opening elastically or decaying to free the seeds (indehiscent), or a gourd.

FLOWERS either solitary or in clusters, greenish-white, with either stamens (male) or carpels (female), very rarely with both, sometimes with the male on one and the female flowers on another plant (dioecious), or with male & female flowers on the same plant (monoecious).

STEMS climbing by means of tendrils opposite each leaf.

LEAVES alternate, lobed towards the base

DISTINGUISHED BY the flowers having 5 sepals, 5 petals, & 5 stamens with thick, wavy anthers (male), or 5 sepals, 5 petals, & 5 carpels with thick, lobed stigmas (female), by the leaves being lobed towards the base (palmatifid), and by the twining tendrils.

BRYONIA DIOICA

WHITE BRYONY

Common White Bryony. (Bryonia dioica, Jacq.)—The only British species (as just described). Flowers $\frac{1}{2}$–$\frac{3}{4}$ inch across, the male on one and the female on another plant (dicœcious). The berries round, about the size of a pea, ripening from orange to scarlet, the brittle stems climbing, by means of the tendrils, to a considerable height. The whole plant is of a bright, shining green, with a few short, white hairs, and its large fleshy root is poisonous. [*Plate* 48.
Common. Hedges and bushy places. May—September. Perennial.

THE PARSLEY FAMILY

[ORDER XXXIV. UMBELLIFERÆ]

THIS order has some very marked characteristics, which serve to distinguish it from all other orders. The little flowers are clustered in simple or usually compound umbels; the flowers have 5 sepals, petals, and stamens, and 2 carpels to which the sepals adhere; and the fruit is placed below the petals and stamens (inferior), and consists of 2 hard cases, each containing 1 hanging seed. Added to this the leaf-stalks are usually dilated into a sheath at the base, and the leaves are usually much divided.

It is a large order, well represented in the British Isles, thriving in the temperate climate of the Northern Hemisphere, in Southern Europe, Northern Africa, and Western Asia, less abundant in tropical or cold regions. A few species are cultivated in our gardens, various species of Eryngium and Astrantia. A species of Heracleum—Heracleum giganticum—is well known in shrubberies. Others are useful as vegetables and flavourings, such as the Carrot, Parsnip, Celery, Parsley, Fennel, Samphire, Caraway, and Angelica. In its wild state Celery (Apium graveolens) is poisonous, but when blanched it is wholesome and nutritious. Samphire (Crithmum maritimum) makes an excellent pickle, and the stems of Angelica are palatable when candied.

MARSH PENNYWORT. (HYDROCOTYLE, LINN.)—Flowers small, usually in clusters of shortly-stalked flowers, all starting from the same point on the main stalk (simple umbels). Calyx entirely combined with the seedcase; petals 5, pointed, not bent inwards; stamens 5; carpels 2. Fruit of 2 united, small, dry, roundish, flattened cases, each containing 1 hanging seed (cremocarp). Herbs, often growing in water (aquatic), with undivided (simple), roundish leaves, often united at the base so that the stalk appears to be inserted underneath the leaf (peltate), and leaf-stalks sheathing at the base.

Marsh Pennywort, White Rot. (Hydrocotyle vulgaris, Linn.)—The only British species (as just described). The flowers minute, pinkish, in clusters of shortly-stalked flowers starting from the same point on the main stalk (simple umbels), very unnoticeable, and never rising above the leaves; the stem whitish, creeping, often nearly buried in mud; the leaves undivided, roundish, scalloped, or faintly lobed, shining, on long stalks which are inserted underneath the leaf in the centre (peltate), and slightly sheathing at the base. [*Plate* 50.
Common in bogs and marshes. June—August. Perennial.

SANICLE. (SANICULA, LINN.)—Flowers pinkish-white, in clusters of shortly-stalked flowers, all rising from the same point on unequal stalks, which have one common starting-point on the main flower-stalk (compound umbel), with small leafy bracts below each entire cluster, and numerous entire bracts round each little flower cluster. Calyx with 5 lance-shaped teeth; petals 5, oblong,

THE PARSLEY FAMILY. (ORDER XXXIV. UMBELLIFERÆ.)

CALYX of 5 SEPALS, united, combined with the seedcase entirely or having 5 minute teeth, remaining with the fruit.

COROLLA of 5 PETALS, usually unequal, with the tips bent inwards so as to appear notched, inserted above the sepals and seedcase (epigynous).

STAMENS 5, alternating with and inserted by the petals.

PISTIL of 2 CARPELS, with their seedcases united and their styles and stigmas free.

FRUIT a cremocarp, consisting of 2 small, dry, ridged cases, each containing 1 suspended seed (mericarp).

STEMS usually hollow & furrowed.

LEAVES alternate, usually much divided and lobed, with their stalks usually dilated at the base into a sheath.

FLOWERS white, yellow or pink, in umbels, usually compound, consisting of clusters of shortly-stalked flowers all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stem.

DISTINGUISHED BY the flower clusters (umbels), the 2 hanging seeds, and the sheathing stalks of the leaves, which are frequently divided several times.

WILD BEAKED PARSLEY, ANTHRISCUS SYLVESTRIS.

WATER-DROPWORT, CENANTHE FISTULOSA.

flowers of Beaked Parsley

calyx

petals

stamens

pistil

fruit

WOOD
SANICLE.
SANICULA
EUROPÆA.
MARSH
PENNY-
WORT.
HYDROCOTYLE
VULGARIS.
COMMON
HEMLOCK
CONIUM MACULATUM.

with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit round, covered with hooked prickles and crowned with the calyx-teeth, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs with undivided (simple) leaves, lobed towards the base, and leaf-stalks sheathing at the base.

Wood Sanicle. (**Sanicula europæa, Linn.**)—The only British species (as just described). The flowers pinkish-white, in small round clusters on unequal stalks; the fruit round; the stem 8 inches to 2 feet high, unbranched (simple), nearly leafless; the leaves chiefly from the root (radical), undivided, on long stalks, round, deeply lobed into 3–5 toothed (serrate) segments; with the leaf-stalks sheathing at the base. [*Plate* 50.

Common in woods and thickets. June—July. Perennial.

BLADDER-SEED. (**PHYSOSPERMUM, CUSSON.**)—Flowers white, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks which have one common starting-point on the main flowering-stalk (compound umbel). Bracts surrounding each entire cluster, few, long, and narrow; those surrounding each little flower cluster 1–5, narrow, and pointed. Calyx with 5 minute teeth; petals 5, broad, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit round, inflated, composed of 2 united, bladder-like cases, each containing 1 hanging seed (cremocarp). Herbs, with leaves divided to the base into 3 leaflets (palmately-trifoliate), which are lobed towards the midrib (pinnatifid), and leaf-stalks sheathing at the base.

Cornish Bladder-seed. (**Physospermum commutatum, Spreng.**)—The only British species (as just described). The fruit of 2 little 1-seeded bladders, joined face to face; the stem 1–4 feet high, furrowed, slender, branched at the top; the leaves of the root on long stalks, divided to the base into 3 stalked leaflets (palmately-trifoliate), each leaflet being 3-lobed and toothed (serrate), the centre one being again lobed to the midrib into three leaflets (pinnatifid); with the leaf-stalks sheathing at the base.

Very rare. Only found near Bodmin and Tavistock. July—August. Perennial.

HEMLOCK. (**CONIUM, LINN.**)—Flowers white, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbel). Bracts 3–5, small and lance-shaped at the base of each entire and each small flower cluster. Calyx entirely combined with the seedcase, without teeth; petals 5, broad, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit broadly egg-shaped (ovate), flattened from side to side, composed of 2 united, 5-ridged cases, each containing 1 hanging seed (cremocarp). Herbs, with leaves divided to the base into 3 stalked leaflets (palmately-trifoliate), which are divided to the midrib into distinct leaflets (pinnate), which are in their turn deeply lobed and toothed (pinnatifid and serrate), and leaf-stalks sheathing at the base.

Common Hemlock. (**Conium maculatum, Linn.**)—The only British species (as described above). The flowers small, white; the stem 2–8 feet high, smooth, green spotted with purple; and the leaves large and graceful. The whole plant gives out a very disagreeable smell and is very poisonous. [*Plate* 50.

Not uncommon. Roadsides, waste places, banks of streams. June—July. Biennial.

ERYNGO. (**ERYNGIUM, LINN.**)—Flowers small, stalkless (sessile), in dense clusters, all rising from the same point on the main flower-stem (simple umbels) with a spinous bract below each flower and several spiny leaf-like bracts below the flower-head. Calyx with 5 free teeth; petals 5,

pointed, with the point bent inwards, apparently notched; stamens 5; carpels 2. Fruit of 2, united, roundish cases, each containing 1 hanging seed (cremocarp), covered with scales and crowned with the spiny calyx-teeth. Herbs often spiny, with very spiny leaves, and leaf-stalks sheathing at the base.

Sea Holly, Sea Eryngo. (**Eryngium maritimum, Linn.**)—As just described. Flowers $\frac{1}{8}$ inch across, stalkless (sessile), bluish, in dense roundish clusters (simple umbels) with a blue bract below each flower, and 5–8 spiny, leaf-like bracts below each cluster or head, the calyx-tube bristly, with 5 spiny teeth remaining with the fruit; the petals 5, pointed, with the point bent inwards; the stamens long, with blue anthers; the carpels with long styles; the fruit roundish, scaly, crowned with the calyx-teeth. The stem 6–18 inches high, thick, solid, much branched at the top, bluish; the leaves undivided (simple), more or less deeply 3-lobed, broad, wavy, and coarsely, spinously toothed, bluish; with the leaf-stalks sheathing at the base. The whole plant is covered with a bluish bloom (glaucous). [*Plate* 51.

Common on sandy sea-shores. July and August. Perennial.

Field Eryngo. (**Eryngium campestre, Linn.**)—A similar plant, with smaller and more numerous clusters of flowers; taller, more slender, more branched, greener stems, and leaves deeply lobed to the midrib (pinnatifid), the lobes being coarsely and spinously toothed.

Very rare. Dry waste places near Plymouth, Durham, and Waterford. July—August. Perennial.

***ASTRANTIA.**—Flowers white or pale pink, in compact simple or irregularly compound clusters (umbels), each mass of shortly-stalked flowers starting from the same point on the stem and surrounded by several, coloured, leafy bracts. Calyx with 5 large lance-shaped teeth; petals 5, with a long point which is bent inwards; stamens 5; carpels 2. Fruit oblong or oval, flattened, scaly, crowned with the long, pointed calyx-teeth, and composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs with undivided (simple) leaves, roundish, lobed and toothed (serrate), and leaf-stalks sheathing at the base.

***Greater Astrantia.** (**Astrantia major, Linn.**)—The only species found in Britain, but not a native. The flowers $\frac{1}{8}$ inch across, white or pale pink, in compact clusters, surrounded by large, undivided, toothed, leafy bracts; sometimes with several clusters, on unequal stalks, which start from the same point (compound umbel); the stem 1–2 feet, unbranched or slightly branched, and the leaves round, undivided, lobed towards the base into 3–7 toothed segments, with bristly teeth; with the leaf-stalks sheathing at the base.

Very rare. Naturalised in woods near Ludlow and Malvern. June—July. Perennial.

ALEXANDERS. (**SMYRNIUM, LINN.**)—Flowers yellow, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbel). Bracts 0, or very few; calyx entirely combined with the seedcase, without teeth; petals 5, pointed, with the point bent inwards; stamens 5; carpels 2. Fruit short, flattened from side to side, with 10 ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs, with various leaves, and sheathing leaf-stalks.

Common Alexanders. (**Smyrnium Olusatrum, Linn.**)—The only British species (as just described). The flowers pale greenish-yellow; the fruit black when ripe; the stem 1–4 feet high, erect, stout, solid; the leaves divided to the base into 3 scalloped leaflets, which are broad, egg-shaped, and slightly lobed; the lower leaves being divided to the midrib into similar

WHORLED
CARAWAY,
CARUM
VERTICILLATUM.
COMMON
HARE'S-
EAR.
SEA HOLLY,
BUPLEURUM
TENUISSIMUM.
COMMON
ALEXANDERS,
SMYRNIUM
OLUSATRUM.
ERYNGIUM MARITIMUM.

leaflets (trifoliate); the leaf-stalks sheathing at the base. The flowers have a very sickly, sweet smell. [*Plate* 51.

Local. Formerly cultivated as a salad. Waste ground near the sea, especially near ruined castles and monasteries. April—June. Biennial.

HARE'S EAR, BUPLEVER. (BUPLEURUM, LINN.)—Flowers yellowish, in clusters of shortly-stalked flowers, each cluster rising from the same point on a longer stalk, which longer stalks have one common starting-point on the main flowering-stalk (compound umbel). The bracts surrounding the clusters are variable, but usually overtop them. Calyx entirely combined with the seedcase, without teeth; petals 5, broad, not bent inwards; stamens 5; carpels 2. Fruit oval or oblong, flattened from side to side, with 10 ridges, composed of 2 united, 1-seeded cases (cremocarp). Herbs, with undivided (simple) leaves, not toothed (entire), and parallel veins, and leaf-stalks sheathing at the base.

Common Hare's-ear. (Bupleurum rotundifolium, Linn.)—As just described. The flowers minute, yellow, each flower cluster surrounded by 4–6 egg-shaped (ovate), pointed, yellowish bracts, much longer than the flowers; the fruit oblong, dark-brown, with 10 ridges; the stem 6 inches to 2 feet high, erect, slightly branched at the top, the leaves undivided, not toothed, broadly egg-shaped (ovate), stalkless (sessile), the upper ones clasping the stem and uniting round it so that the stem appears to pass through the leaf (perfoliate), smooth, and with a bluish bloom (glaucous). Very unlike the ordinary Parsley Family, at a glance resembling a Spurge.

Rare. Only found in cornfields on chalky soil in the eastern and southern counties. June—July. Annual.

Narrow-leaved Hare's-ear. (Bupleurum aristatum, Bartl.)—Flowers minute, in smaller but similar clusters to the Common Hare's-ear, with narrow, green bracts; the stems 1–8 inches high, usually unbranched (simple), and the leaves narrow and grass-like.

Very rare. Only found at Torquay, Eastbourne, and the Channel Isles, on sandy banks. July—August. Annual.

Slender Hare's-ear. (Bupleurum tenuissimum, Linn.)—Somewhat similar to the Narrow-leaved Hare's-ear, but smaller, the flower clusters larger in proportion to the thin stem, and narrow, small leaves. [*Plate* 51.

Rare. Salt marshes in the south-eastern counties, also some inland counties. August—September. Annual.

Sickle-leaved Hare's-ear. (Bupleurum falcatum, Linn.)—The flowers yellow and similar to the other species, but with bracts shorter than the clusters; the stem 1–4 feet high, branched; the leaves of the upper stem stalkless (sessile), narrow, pointed and curved; those of the root (radical) on long stalks and egg-shaped (ovate); the leaf-stalks sheathing at the base.

Very rare. Found abundantly near Ongar in Essex, and in Surrey. August—September. Perennial.

HONEWORT. (TRINIA, HOFFM.)—Flowers minute, white, without stamens on one plant and without carpels on another (dicecious), in clusters of shortly-stalked flowers, each cluster rising from the same point on a longer stalk, which longer stalks all have one common starting-point on the main flowering-stalk (compound umbels). Bracts surrounding the umbels few or none. Calyx entirely combined with the seedcase, without teeth; petals 5, with the tip bent inwards; stamens 5 or 0; carpels 2 or 0. Fruit oval, flattened and ridged, composed of 2 united cases, each containing 1 hanging seed (cremocarps). Much-branched herbs, with leaves divided to the midrib into

several pairs of leaflets and 1 terminal one, which in the lower leaves are similarly divided again and again (tri-imparipinnate). Leaf-stalks sheathing at the base.

Honewort. (Trinia glaberrima, Hoffm.)—The only British species (as just described). The flowers in very small clusters; the stem 3–12 inches high, stout, solid, grooved; the leaves divided to the midrib into several pairs of distinct leaflets, and 1 terminal one, which in the root-leaves are similarly divided again and again (tripinnate), finally into narrow 3-lobed leaflets.
Very rare. Limestone rocks in Devonshire, Bristol, and Somerset. May—June. Perennial.

CARAWAY, PARSLEY. (CARUM, LINN.)—Flowers white, yellow, or pink, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks all have one common starting-point on the main flowering-stalk (compound umbels). Bracts many, few, or none. Calyx entirely combined with the seedcase, without teeth; petals 5, roundish, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval to round, flattened, ridged, composed of 2 united cases, each containing 1 hanging seed (cremocarps). Plants of various habits, with finely divided leaves and leaf-stalks sheathing at the base.

Whorled Caraway. (Carum verticillatum, Koch.)—As just described. The flowers pinkish; the bracts surrounding the main cluster and each separate flower cluster many and lance-shaped; the fruit oval, flattened, ribbed, yellowish-brown; the stem 1–2 feet high, erect, slightly branched, and wiry; the leaves divided to the midrib into many pairs of leaflets which are divided into hair-like segments, which give the leaf the appearance of being whorled; the leaf-stalks sheathing at the base. [*Plate* 51.
Rare, local. Wet meadows in Wales, the Lake district, the south-west of Scotland, and Ireland. July—August. Perennial.

***Common Parsley. (Carum Petroselinum, Benth. & Hook. fil.)**—Not a native. Flowers yellow; the bracts surrounding the main cluster few, one of them often lobed to the midrib (pinnatifid); and those surrounding each little flower cluster numerous and lance-shaped; the fruit oval, flattened, and ridged. [As described in the genus Carum.] The stem 1–2 feet high, erect, stout, furrowed; and the leaves shining, divided into 3 leaflets (trifoliate), which are divided to the midrib into several pairs of leaflets and 1 terminal one, which are in their turn similarly divided into lobed or serrate leaflets (bi-imparipinnate); the leaf-stalks with sheathing bases.
Rare. An escape from gardens, found on rocks and old walls. June—August. Biennial.

Corn Parsley. (Carum segetum, Benth. & Hook. fil.)—Flowers minute, white, the flowers and clusters being few and on unequal stalks; the bracts surrounding the main umbel 2–3, narrow; those surrounding each flower cluster 3–4, narrow, short; the fruit 2-seeded, oval, ridged, and olive-green. [As described in the genus Carum.] The stem 1–2 feet high, branched, slender, and wiry; the leaves chiefly from the root (radical), divided to the midrib into several pairs of egg-shaped (ovate), toothed leaflets, with 1 terminal one (imparipinnate); the upper leaves few, small, with a few narrow leaflets; leaf-stalks sheathing at the base.
Local. Waysides, banks, and waste places in southern and central England. August—September. Biennial.

***Common Caraway. (Carum Carvi, Linn.)**—Not a native. The flowers white; the bracts 0 or 1; the fruit narrowly oval and ribbed. [As described in the genus Carum.] The stem 1–2 feet high, erect, much branched, and the leaves divided to the midrib into several pairs of short, stalkless (sessile) leaflets and 1 terminal one, which in the lower leaves are in their turn similarly divided into strap-shaped, lobed leaflets (bi-imparipinnate); the leaf-stalks sheathing at the base.

The fruit is the well-known "caraway seed" used in confectionery.
Not common; an escape from cultivation. Waste places, meadows. June—July. Biennial.

PROCUMBENT
MARSHWORT.
APIUM
NODIFLORUM.
WILD CELERY.
APIUM
GRAVEOLENS.

Tuberous Caraway. (Carum Bulbocastanum, Koch.)—Flowers white; the bracts numerous, strap-shaped; the fruit very narrowly oval, slightly ribbed. [As described in the genus Carum.] The stem 6 inches to 2 feet high, erect, much branched; the leaves divided into 3 leaflets (trifoliate), which are divided to the midrib into several pairs of leaflets and 1 terminal one, which are in the lower leaves again similarly divided into narrow lobed leaflets (bi-imparipinnate); the leaf-stalks with sheathing bases. Root tuberous, as large as a chestnut, black.
Very rare. Chalky fields; fairly abundant in some parts of Hertfordshire and Cambridgeshire. June—July. Perennial.

CELERY, MARSH-WORT. (APIUM, LINN.)—Flowers small, greenish-white, in clusters of shortly-stalked flowers, each cluster rising from the same point on a longer stalk, which longer stalks all have one common starting-point on the main flowering-stalk (compound umbel). Few or no bracts surrounding the umbels. Calyx with 5 lance-shaped teeth; petals 5, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit round, flattened from side to side, with 10 ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs with leaves divided to the midrib into several distinct pairs of leaflets, with 1 terminal one (imparipinnate), and the leaf-stalks sheathing at the base.

Wild Celery, Smallage. (Apium graveolens, Linn.)—As just described. The flowers white, in clusters on very short main stalks, opposite the leaves; the fruit small, without bracts; the stem 1–2 feet high, and much branched; the leaves divided to the midrib into 2–3 pairs of broad, 3-lobed, toothed leaflets, with 1 terminal one (imparipinnate); and the leaf-stalks sheathing at the base. [*Plate* 52.

This species is the origin of our garden Celery, and has a strong scent and flavour.
Not uncommon. Moist places near the sea, and inland salt districts. June—September. Biennial.

Procumbent Marshwort. (Apium nodiflorum, Reichb. fil.)—A somewhat similar species. The flowers on very short main stalks; with numerous bracts surrounding all the clusters; the fruit oval, flattened, dark brown; the stem 6 inches to 3 feet long, creeping, rooting at the nodes, hollow, smooth, growing in water; the leaves divided to the midrib into 2–6 pairs of oval or egg-shaped, toothed leaflets and 1 terminal one (imparipinnate); with the leaf-stalks sheathing at the base. [*Plate* 52.

This plant is sometimes mistaken for the Common Watercress (Nasturtium officinalis, belonging to the Cabbage Family), but its flowers or fruits in umbels, and its hollow and sheathing leaf-stalks distinguish it at once.
Common. Ditches, ponds, and streams. July—August. Perennial.

Least Marsh-wort. (Apium inundatum, Reichb. fil.)—A similar plant to the last, but smaller in all ways, with few flowers and clusters, shorter and smaller stems, smaller leaves, those above water being 3-lobed as well as toothed, and those under water being divided into hair-like leaflets.
Common, easily overlooked. Ditches, ponds, and streams. June—July. Perennial.

COWBANE. (CICUTA, LINN.)—Flowers white, in large clusters of stalked flowers, all rising from the same point on longer stalks, which longer stalks all have one common starting-point on the main flowering-stalk (compound umbel). Bracts surrounding the separate flower clusters unequal, small, many, those surrounding the entire cluster none or few. Calyx with 5 teeth; petals 5, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit very broad,

flattened, ridged, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Water herbs with hollow stems, and leaves divided to the midrib into 3 or more distinct leaflets, which may be again and again similarly divided (trifoliate or bi- or tri-imparipinnate), and leaf-stalks sheathing at the base.

Water Cowbane or Water Hemlock. (**Cicuta virosa, Linn.**)—The only British species (as just described). The flowers in large, flat-topped clusters ; the fruit very broad, reddish-brown; the stem 1–4 feet high, hollow, and branched ; the leaves with narrow, lance-shaped, toothed leaflets. Very poisonous.

Rare, local. Ditches and ponds, most frequent in the Norfolk Broads. July—August. Perennial.

STONE PARSLEY. (**SISON, LINN.**)—A genus consisting of the one species—

Stone Parsley, Hedge Stonewort. (**Sison Amomum, Linn.**)—Flowers white, in small, irregular clusters of shortly-stalked flowers, all rising from the same point on a longer stalk, which longer stalks have one common starting-point on the main flowering-stalk (compound umbel). Bracts 2–4, small and narrow, surrounding the entire and each little flower cluster. Calyx entirely combined with the seedcase, without teeth; petals 5, broad, with the tip bent inwards, apparently notched; stamens 5 ; carpels 2. Fruit broadly egg-shaped, flattened from side to side, with 10 ribs, dark brown, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Stem 1–3 feet high, branched, wiry. Leaves of the lower stem divided to the midrib into several pairs of oval, toothed, or lobed leaflets, and 1 terminal one (imparipinnate); those of the upper stem smaller and divided to the base into 3 leaflets with short, narrow, almost hair-like lobes. Leaf-stalks sheathing at the base. [*Plate* 53.

A very similar plant to the Corn Parsley (Carum segetum).

Not common. Frequent in hedges and waysides in the south of England; rare elsewhere. August—September. Biennial.

FOOL'S PARSLEY. (**ÆTHUSA, LINN.**)—A genus consisting only of the one following species—

Common Fool's Parsley. (**Æthusa Cynapium, Linn.**)—Flowers white, in clusters of shortly-stalked flowers, the outer petals being larger, each cluster starting from the same point on a longer stalk, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts surrounding the entire cluster 1 or 0, those surrounding each little flower cluster 3, long, narrow, and drooping, all on the outer side of the cluster; these bracts distinguish it from any other British Umbellifer. Calyx entirely combined with the seed-case, without teeth ; petals 5, unequal, with the tip bent inwards, apparently notched ; stamens 5 ; carpels 2. Fruit roundish, not flattened, with 10 ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). A very graceful herb, about 1 foot high, with leaves divided to the midrib into several pairs of distinct leaflets, with 1 terminal one (imparipinnate), which are again divided in a similar manner into slender, more or less deeply lobed leaflets (bi-imparipinnate). Leaf-stalks sheathing at the base. The whole plant is poisonous. [*Plate* 53.

Common. Gardens and cultivated ground. July—September. Annual.

WATER PARSNIP. (**SIUM, LINN.**)—Flowers white, in numerous clusters of shortly-stalked flowers, each cluster rising from the same point on a longer stalk, which longer stalks have one common starting-point on the main flowering-stalk (compound umbel). Bracts variable. Calyx

STONE
PARSLEY.
HEDGE
STONEWORT.
SISON
AMOMUM.
COMMON
FOOL'S PARSLEY.
ÆTHUSA
CYNAPIUM.

with 5 teeth; petals 5, roundish, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit roundish, flattened, ridged, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs usually growing in wet places, with leaves divided to the midrib into toothed or lobed leaflets, and leaf-stalks sheathing at the base.

Broad-leaved Water-Parsnip. (Sium latifolium, Linn.)—As just described. The flowers white, in numerous clusters, forming a large, flat-topped mass of flowers; with many, leafy, lance-shaped, toothed (serrate) bracts round the entire and separate flower clusters; the fruit oval, strongly ridged, 2-seeded; the stem 2–4 feet high, erect, stout, furrowed, smooth; and the leaves of the lower stem divided to the midrib into 6–10 pairs of very long, narrowly egg-shaped (ovate), toothed (serrate), stalkless (sessile) leaflets, with 1 terminal one; those of the upper stem shorter, with fewer leaflets; the leaf-stalks with sheathing bases, the upper much dilated.

Rare. Ditches, riversides, watery places. July—September. Perennial.

Narrow-leaved Water-Parsnip. (Sium erectum, Huds.)—A very similar species, with more numerous, but smaller, clusters of flowers, on shorter stalks; lobed and more deeply toothed bracts; smaller fruit, rounder and less strongly ridged; the stems seldom more than 2 feet high and leafy; shorter and deeply lobed and toothed leaflets. [*Plate* 54.

Not common. Ditches and wet places. July—August. Perennial.

FENNEL. (FŒNICULUM, LINN.)—Flowers deep yellow, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts 0, calyx entirely combined with the seedcase, without teeth; petals 5, nearly equal, with the tips bent inwards, not notched; stamens 5; carpels 2. Fruit oval, not flattened, with 10 strongly-marked ridges, of 2 united cases, each containing 1 hanging seed (cremocarp). Tall plants with leaves divided and much sub-divided to the midrib into very narrow leaflets (bi- or tri-imparipinnate), and the leaf-stalks sheathing at the base.

Common Fennel. (Fœniculum vulgare, Mill.)—The only British species (as just described). The flowers deep yellow; the stem 3–5 feet high, erect, polished, thick, branched, deep green, and the leaves divided to the midrib into several pairs of leaflets, which are similarly twice or thrice sub-divided into narrow, hair-like, roundish leaflets (bi- or tri-imparipinnate); the leaf-stalks sheathing at the base, cut, and bent back, looking like stipules. [*Plate* 54.

An aromatic plant, cultivated for its leaves, which are used in cooking.

Not common. Waste places, especially near the sea. July—August. Perennial.

SAMPHIRE. (CRITHMUM, LINN.)—A genus consisting of the one species—

Rock Samphire. (Crithmum maritimum, Linn.)—Flowers pale greenish-yellow, in numerous clusters of shortly-stalked flowers, all arising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts numerous, egg-shaped (ovate), surrounding the entire cluster and each little flower cluster. Calyx entirely combined with the seedcase, without teeth; petals 5, equal, bent inwards; stamens 5; carpels 2. Fruit oblong, not flattened, with 10 sharp ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). A smooth, fleshy, branched plant, about 1 foot high, woody at the base, leaves divided into 3 leaflets, which are similarly sub-divided once or even twice (bi- or tri-trifoliate) into narrow, thick, fleshy leaflets, with the leaf-stalks sheathing at the base.

The plant has an aromatic scent, and its young leaves make an excellent pickle.

Not common. On cliffs by the sea-shore, chiefly on our southern and western coasts. July—August. Perennial.

BURNET-SAXIFRAGE. (PIMPINELLA, LINN.)—Flowers white, rarely pink or yellowish, in terminal clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts 0. Calyx entirely combined with the seedcase, without teeth; petals 5, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval, flattened from side to side, with 10 ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs with the root (radical) leaves divided to the midrib into several pairs of oval, toothed (serrate) or lobed (pinnatifid) leaflets, and 1 terminal one (imparipinnate), and with the leaf-stalks sheathing at the base.

Common Burnet Saxifrage. (Pimpinella Saxifraga, Linn.)—As just described. The flowers white, sometimes pinkish, in small, close clusters; the fruit oval, flattened, with 10 ridges, 2-seeded; the stem 9 inches to 3 feet high, branched, round, slender; the leaves of the root divided to the midrib into 4–8 pairs of roundish, stalkless, toothed or lobed leaflets, and 1 terminal one; those of the stem few, the leaflets becoming narrower and the lobes strap-shaped; with the leaf-stalks sheathing at the base. [*Plate* 55.

Very common. Hedges, waysides, and waste places. July—September. Perennial.

Greater Burnet Saxifrage. (Pimpinella major, Huds.)—A very similar species, but larger in all ways, usually with pink flowers, and toothed, egg-shaped leaflets, rarely lobed.

Not common, local. Waysides, bushy places. July—September. Perennial.

PIG-NUT or EARTH-NUT. (CONOPODIUM, KOCH.)—A genus consisting of the one species—

Common Pig-nut or Earth-nut. (Conopodium denudatum, Koch.)—Flowers white, in clusters of shortly-stalked flowers, the outer petals larger, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts 0 or few. Sepals 5, entirely combined with the seedcase, without teeth; petals 5, unequal, with the tip bent inwards; stamens 5; carpels 2. Fruit oblong, slightly flattened at the sides, contracted at the top, with 10 ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Stem about 1 foot high, slender, very slightly branched. Leaves divided to the base into 3 leaflets, which are divided and sub-divided to the midrib into several pairs of narrow, strap-shaped leaflets, and 1 terminal one; the larger root-leaves decaying early. Leaf-stalks sheathing at the base. Root-fibres with roundish tubers covered with a thin brown skin, and eagerly devoured by pigs. [*Plate* 55.

Common. Pastures, hillsides, and woods. May—July. Perennial.

CHERVIL. (CHÆROPHYLLUM, LINN.)—Flowers white, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts 0 or very few. Calyx entirely combined with the seedcase, without teeth; petals 5, unequal, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit narrowly oblong, beaked at the top, of 2 united cases, with 10 slight ridges sometimes not shewing, each case containing 1 hanging seed (cremocarp). Hairy herbs with hairy leaves divided to the base into 3 leaflets (trifoliate), which are divided to the midrib

ROCK
SAMPHIRE.
CRITHMUM
MARITIMUM.
COMMON
FENNEL.
FŒNICULUM
VULGARE.
NARROW-LEAVED
WATER-PARSNIP.
SIUM
ERECTUM.

into several pairs of lobed (pinnatifid), toothed (serrate) leaflets and 1 terminal one (imparipinnate), and with leaf-stalks sheathing at the base.

Rough Chervil. (Chærophyllum temulum, Linn.)—The only British species (as described above). Many botanists include the genus Anthriscus with the genus Chærophyllum and so make three more species. The flower clusters drooping in bud, no bracts round the entire cluster, but 5–8 hairy, fringed, lance-shaped ones round each little flower cluster; the stems 1–4 feet high, erect, solid, rough with short hairs, blotched with purple, and slightly thickened at the nodes. The whole plant turns the most beautiful colours, varying from bright rose to a brownish-purple.
Very common. Hedges, waysides, and waste places. June—July. Perennial. [*Plate* 55.

MEADOW SAXIFRAGE. (SESELI, LINN.)—Flowers white, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts many, entire. Calyx with 5 teeth; petals 5, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval or oblong, not flattened, with 10 thickened ridges, of 2 united cases, hairy or smooth, each containing 1 hanging seed (cremocarp). Plants with much divided leaves of various habits, and leaf-stalks sheathing at the base.

Mountain Meadow Saxifrage. (Seseli Libanotis, Koch.)—The only British species (as just described). The flowers white, with nearly equal petals, each cluster formed of 20–40 roundish clusters of flowers; the bracts round the main and separate little flower clusters numerous, narrow, and fringed; the fruit oval, hairy, with 10 blunt ridges, 2-seeded; the stem 1–3 feet high, solid, furrowed, slightly branched at the top; and the leaves divided to the midrib into several pairs of leaflets and 1 terminal one, which are similarly sub-divided (bi-imparipinnate); the leaf-stalks sheathing at the base.
Very rare. Chalky hills in Cambridgeshire, Sussex, and Hertfordshire. July—August. Perennial.

WATER DROPWORT. (ŒNANTHE, LINN.)—Flowers white, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts variable. Calyx with 5 teeth, remaining with the fruit (persistent); petals 5, unequal, with the tips bent inwards, apparently notched; stamens 5; carpels 2. Fruit oblong or oval, crowned with the 2 long, erect styles and the 5 short calyx-teeth, smooth, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs growing in wet places, with the upper leaves divided to the midrib into several pairs of leaflets and 1 terminal one (imparipinnate), and the lower ones similarly sub-divided twice or thrice (bi- or tri-imparipinnate), and the leaf-stalks sheathing at the base.

Common Water-Dropwort. (Œnanthe fistulosa, Linn.)—As just described. The flowers white, with the central flowers of each small cluster perfect, but the outer ones without carpels, the terminal cluster being composed of only 3 little clusters of flowers, and the others of from 3–8 clusters; bracts 0; fruits in compact, round, spiny clusters, each fruit being oblong, and crowned with the calyx-teeth and the 2 long styles which become rigid. Stems 2–3 feet high, thick, hollow, with very thin walls, smooth, slightly branched; the leaves of the upper stem very small, shorter than their hollow sheathing stalks, divided to the midrib into one or two pairs of narrow, strap-like, blunt leaflets and 1 terminal one; those of the root small, similarly divided and sub-divided into narrow, blunt leaflets, fading by the time the flowers are out. Root fibres fleshy, thickened. [*Plate* 49.
Not uncommon. Ditches, by the side of pools and other wet places. July—September. Perennial.

Callous-fruited Water-Dropwort. (Œnanthe pimpinelloides, Linn.)—Flowers white, in numerous flat clusters, with the central flowers of each small cluster perfect, but the outer ones without perfect carpels; the bracts surrounding the entire cluster few, small and narrow, or 0; those surrounding each little cluster several; the fruit oblong, 2-seeded, with a corky base, crowned with the calyx-teeth and styles, which become rigid, the styles being shorter than in the last species. [As just described in the genus Œnanthe.] Stem 1–3 feet high, hollow, furrowed, and slightly branched; the leaves very variable, usually more divided and pointed than in the last species, the upper ones pointed and longer than their solid sheathing stalks. Root fibres with tubers.

Rare. Pastures, meadows, and marshes in the south of England. June—August. Perennial.

Sulphur-wort Water-Dropwort. (Œnanthe silaifolia, Bieberstein.)—A very similar species to the last, the Callous-fruited Water-Dropwort, but with fewer flower clusters; no bracts round the entire cluster, but many round the little flower clusters; fruit without a corky base; and spindle-shaped root fibres. A larger, stouter plant.

Rare. Marshes, chiefly in the south-east of England. June—July. Perennial.

Parsley Water-Dropwort. (Œnanthe Lachenalii, C. Gmel.)—Another similar species to the Callous-fruited Water-Dropwort, with smaller flowers, and nearly equal petals; fruit clusters round, fruit without a corky base; the lower leaflets divided into much broader, blunter leaflets and lobes, and the root fibres fleshy and thickened, but without tubers.

Not uncommon. Marshes, especially salt marshes and ditches. July—September. Perennial.

Hemlock Water-Dropwort. (Œnanthe crocata, Linn.)—Flowers white, with purple stamens, in large, showy clusters, the outer flowers rarely seeding; bracts round the entire cluster few or 0, round each separate flower cluster numerous, small; fruit oblong, crowned with its calyx-teeth and 2 styles. [As described in the genus Œnanthe.] Stem 2–5 feet high, erect, stout, hollow, branched at the top; the leaves large, almost stalkless, divided to the midrib into several pairs of broad leaflets and 1 terminal one, which are similarly sub-divided into triangular lobed leaflets, and sometimes further sub-divided (bi- or tri-imparipinnate); the upper leaves stalkless, except for the very short, dilated sheaths. Root fibres forming thick, long tubers.

The whole plant and its roots are very poisonous.

Common. Wet places. June—August. Perennial.

Fine-leaved Water-Dropwort, Horse-bane. (Œnanthe Phellandrium, Lam.)—Flowers white, all perfect, in small, nearly stalkless clusters opposite the leaves; no bracts surrounding the entire flower cluster, those surrounding each separate flower cluster many, small, and narrow; the fruit oblong, crowned with its 5 calyx-teeth and 2 styles. [As just described in the genus Œnanthe.] Stems 2–4 feet high, erect, very thick, and branched; the leaves when growing out of water divided to the base into several pairs of leaflets and 1 terminal one, which are similarly sub-divided into deeply lobed leaflets and sometimes again sub-divided in like manner (bi- or tri-imparipinnate), the submerged leaves with hair-like leaflets; with the leaf-stalks sheathing at the base. Root of numerous slender fibres, none thickened as in the preceding species. Poisonous.

Not uncommon. In still water and wet places. July—September. Biennial.

River Water-Dropwort. (Œnanthe fluviatilis, Coleman.)—A floating plant; the part of the plant which flowers and rises out of the water is very similar to the last species, differing in the leaves being less deeply divided. The floating stem has numerous root-fibres, and the leaves under water are divided and sub-divided to the midrib into several pairs of narrow leaflets and 1 terminal one, 3-lobed at the tip (bi-imparipinnate); with the leaf-stalks sheathing at the base.

Rare. In running water in the south. July—September. Biennial.

ROUGH CHERVIL.
CHEROPHYLLUM
TEMULUM.
COMMON
BURNET
SAXIFRAGE.
PIMPINELLA
SAXIFRAGA.
COMMON
EARTH-NUT, or
PIG-NUT,
CONOPODIUM
DENUDATUM.

WILD
ANGELICA,
ANGELICA SYLVESTRIS
COMMON
GOUT-
WEED,
ÆGOPODIUM PODAGRARIA

GOUT-WEED. (ÆGOPODIUM, LINN.)—A genus consisting of the one species—

Common Gout-weed, Bishop's-weed. (Ægopodium Podagraria, Linn.)—Flowers white, in large clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts 0; calyx entirely combined with the seedcase, without teeth; petals 5, with the tips bent inwards, apparently notched; stamens 5; carpels 2. Fruit of 2 united, oval, ridged cases, each containing 1 hanging seed (cremocarp). Stem 2–3 feet high, branched, thick, hollow, furrowed. Leaves of the upper stem divided to the base into 3 egg-shaped (ovate) leaflets (trifoliate); those of the lower stem similarly sub-divided again and again (bi- or trifoliate); the leaf-stalks sheathing at the base. [*Plate* 56.

Common. Waysides, hedges near cottages. June—July. Perennial.

ANGELICA. (ANGELICA, LINN.)—Flowers white or pale pink, in numerous showy clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts 0 or few; calyx entirely combined with the seedcase, without teeth; petals 5, equal, pointed, not bent inwards; stamens 5; carpels 2. Fruit oblong, flattened from front to back, of 2 united cases, each containing 1 hanging seed (cremocarp), each case surrounded by a double wing which distinguishes it from the fruit of all the other British Umbelliferæ. Plants with leaves divided into 3 large-toothed leaflets (trifoliate), which are twice divided to the midrib into several pairs of leaflets and 1 terminal one (bi-imparipinnate); the leaf-stalks sheathing at the base.

Wild Angelica. (Angelica sylvestris, Linn.)—The only British species (as described above). With large, pinkish clusters of flowers; 1–3 bracts; stout red or purple stems, 1–5 feet high, thick and hollow; egg-shaped leaflets; and much dilated sheaths. [*Plate* 56.

Common. Damp places, woods, thickets, and near streams. July—August. Perennial.

***GARDEN ANGELICA. (ARCHANGELICA, HOFFM.)**—This genus is not a native, though **Archangelica officinalis** is occasionally found as an escape from cultivation, being grown for its aromatic stems, which when candied are used as a sweetmeat. It differs from the Angelica in having 5 minute teeth to the calyx, and in a few details in the fruit.

CICELY. (MYRRHIS, LINN.)—A genus consisting of the one species—

Sweet Cicely. (Myrrhis Odorata, Scop.)—Flowers white, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts surrounding the entire cluster 0, those round each little flower cluster lance-shaped, pointed, whitish. Calyx entirely combined with the seedcase, without teeth; petals 5, unequal, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit very long, narrowly oblong, slightly flattened at the sides, with 10 sharp ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Stem 2–4 feet high, round and hairy. Leaves slightly downy, divided to the base into 3 leaflets (trifoliate) which are divided and sub-divided to the midrib into several pairs of narrow, lobed, toothed leaflets, with 1 terminal one (bi-imparipinnate). Leaf-stalks sheathing at the base. The leaves and the fruit have a sweet, aromatic flavour. [*Plate* 57.

Not common. Pastures in mountainous districts in Wales, the north of England, and Scotland. May—June. Perennial.

SHEPHERD'S NEEDLE. (SCANDIX, LINN.)—Flowers white, in very few clusters of shortly-stalked flowers, all starting from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts surrounding the entire cluster 0, those surrounding each separate flower cluster numerous. Calyx entirely combined with the seedcase, without teeth; petals 5, unequal, with the tip bent inwards, not notched; stamens 5; carpels 2. Fruit oblong, with 10 ridges, lengthened into a very long, slender, smooth beak, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs with leaves divided and sub-divided to the midrib into several pairs of deeply-lobed (pinnatifid) leaflets, and 1 terminal one (bi-imparipinnate). The leaf-stalks sheathing at the base.

Common Shepherd's Needle or Venus' Comb. (Scandix Pecten-Veneris, Linn.)—The only British species (as just described above). A small plant, with very few clusters of minute, white, almost stalkless flowers; long beaked fruits; stems 3–9 inches high, and narrow leaflets with strap-like lobes. [*Plate* 57.

Common in cultivated ground. June—September. Annual.

BEAKED PARSLEY. (ANTHRISCUS, BERNH.)—Flowers white, in clusters of shortly-stalked flowers, each cluster starting from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbel). Bracts surrounding the entire cluster 0 or rarely 1; those surrounding each separate cluster several, entire (simple). Calyx entirely combined with the seedcase, without teeth; petals 5, unequal, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval, with 10 obscure ridges, shortly-beaked at the tip, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Hairy herbs with leaves divided and sub-divided to the midrib into several deeply lobed (pinnatifid) leaflets and 1 terminal one (bi-imparipinnate). Leaf-stalks sheathing at the base.

Common Beaked Parsley. (Anthriscus vulgaris, Bernh.)—As just described. The flowers white, the clusters on very short stalks, with 4–5 lance-shaped, fringed bracts surrounding each little flower cluster; fruit oblong, 2-seeded, covered with short, hooked spines, and lengthened into a short, smooth beak; the stem 2–3 feet high, smooth, branched, hairy, swollen below the nodes; the leaves hairy, divided, sub-divided, and the lower ones even again sub-divided to the midrib into several pairs of bluntly lobed and toothed leaflets and 1 terminal one (bi- or tri-imparipinnate); with the leaf-stalks sheathing at the base. The whole plant light green, very full of leaves and flower clusters.

Not common. Waysides, hedges, and waste places. May—June. Annual.

Wild Beaked Parsley. (Anthriscus sylvestris, Hoffm.)—A very similar species to the last, with the flower clusters on longer stalks; 3–7 lance-shaped, pointed, fringed bracts round each little flower cluster; the fruit smooth, narrowly oval, without any ridges, and hardly beaked; the stem 2–4 feet high, erect, hollow, furrowed, branched, hairy, often reddish; the leaves hairy, only twice divided to the midrib into broader, more coarsely toothed leaflets and 1 terminal one (bi-imparipinnate). One of our earliest flowering plants. [*Plate* 49.

Very common. Waysides, hedges, and waste places. April—June. Perennial.

***Garden Chervil. (Anthriscus Cerefolium, Hoffm.)**—Not a native. Very similar to the last two species, with the flower clusters opposite the leaves and almost stalkless, with the fruit smooth and with a long beak, the stem more slender, and the leaves much divided.

Rare. An escape from cultivation. Hedges and waste ground. May—June. Annual.

SPIGNEL. (MEUM, ADANS.)—Flowers white or pink, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point

SHEP
HERD'S NEEDLE.
SCANDIX PECTEN-VENERIS.
SWEET
CICELY
MYRRHIS
ODORATA
MEUM
ATHAMANTICUM

on the main flowering stalk (compound umbel). Bracts few round the entire cluster, many round each little flower cluster. Sepals 5, entirely combined with the seedcase, without teeth; petals 5, nearly equal, with the tips bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval, not flattened, with 10 sharp ridges, of 2 united cases (cremocarps), each containing 1 hanging seed. Herbs with leaves divided to the midrib into several pairs of leaflets and one terminal one, which are similarly sub-divided (bi-imparipinnate), and the leaf-stalks sheathing at the base.

Bald-Money or Spignel, Meu. (**Meum Athamanticum, Jacq.**)—The only British species (as just described). The flowers white, often tinged with pink, the clusters terminal and not large; the stem 9 inches to 3 feet high, erect and slightly branched, and the leaves divided into hair-like leaflets. [*Plate* 57.

Rare. Mountain pastures in Wales, the north of England, and Scotland. June—July. Perennial.

LOVAGE. (**LIGUSTICUM, LINN.**)—Flowers white or pink, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts varying. Calyx with or without 5 teeth; petals 5, equal, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval or oblong, not flattened, with 10 sharp, almost winged ribs, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Plants of various habits, with leaves divided to the base into 3 leaflets, which are similarly divided and even sub-divided.

Scottish Lovage. (**Ligusticum scoticum, Linn.**)—The only British species (as above described. The flowers white, tinged with pink; 2–3 bracts round the entire cluster, and many narrow ones round each little flower cluster; the stem 1–3 feet high, erect, furrowed, hollow, slightly branched; the leaves divided into 3 stalked leaflets, which are also divided into 3 broadly egg-shaped, toothed, and sometimes lobed leaflets; and the leaf-stalks sheathing at the base.

Rare, local. Rocky and sandy sea-shores in Northumberland and Scotland. July. Perennial.

FALSE MILK PARSLEY. (**SELINUM, LINN.**)—Flowers white, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels); bracts o round the entire cluster, many surrounding each little flower cluster; calyx with 5 teeth; petals 5; stamens 5; carpels 2. Fruit oval, flattened with 10 winged ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). A herb with leaves divided and sub-divided to the midrib into several pairs of leaflets and 1 terminal one (bi-imparipinnate), all deeply lobed into narrow pointed segments.

False Milk Parsley. (**Selinum Carvifolia, Linn.**)—The only British species (as just described. The flowers white, in large, flat, terminal clusters; the stem 2–4 feet high, erect, solid, and furrowed, and the leaves large.

Very rare. Moist, shady places in Cambridgeshire and Lincolnshire. July—August. Perennial.

HOG'S-FENNEL. (**PEUCEDANUM, LINN.**)—Flowers yellow, white, or greenish, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels); bracts various; calyx usually with 5 teeth; petals 5, with the tips bent inwards, entire or apparently notched; stamens 5; carpels 2. Fruit oval or oblong, flattened, composed of 2 united, 3-ridged cases surrounded by a flat wing, each containing 1 hanging seed (cremocarp). Plants with divided leaves, and leaf-stalks sheathing at the base.

Sulphur-wort, Sea Hog's-Fennel. (**Peucedanum officinale, Linn.**)—As just described. Flowers minute, pale yellow, with equal petals, the clusters being large; about 3 bracts surrounding the entire cluster, and falling quickly, those of each little flower cluster narrow and short; the fruit broadly oval, much flattened, with 6 slender ridges, and the edges widened into a ring; the stem 18 inches to 4 feet high, erect, round, solid, branching at the top; and the leaves divided to the base into 3 leaflets, each leaflet being similarly divided 2, 3, or 4 times, the final leaflets being long and hair-like (3–5 trifoliate); the leaf-stalks sheathing at the base.
Very rare. Salt marshes in Kent and Essex. July—September. Perennial.

Milk Parsley, Marsh Hog's-Fennel. (**Peucedanum palustre, Moench.**)—Flowers white, with many narrow, drooping bracts round all the clusters; the fruit broadly oval, flattened, with 6 blunt ridges, and the edges widened into a wing. [As just described in the genus Peucedanum.] The stem 3–5 feet high, erect, furrowed, hollow, branched at the top, with a milky juice; and the leaves divided to the midrib into several pairs of leaflets and 1 terminal one, and sometimes again and again similarly sub-divided into narrow pointed leaflets (bi- or tri-imparipinnate); the leaf-stalks sheathing at the base.
Rare, local. Marshes and fens in the south-east of England. July—August. Perennial.

***Masterwort.** (**Peucedanum Ostruthium, Koch.**)—Flowers white, in large terminal clusters. Bracts 0, surrounding the entire cluster, and a few small ones round each separate cluster. Fruit nearly round, much flattened, composed of 2 united, 1-seeded cases, each with 3 slender ridges, the united edges extended into a wing. [As just described in the genus Peucedanum.] The stem 18 inches to 3 feet high, stout, round, hollow, slightly branched; and the leaves divided to the base into 3 leaflets, which sometimes are again similarly divided, the leaflets being 3-lobed and toothed (tri-foliate or bi-trifoliate); the leaf-stalks sheathing at the base.
Rare. An escape from cultivation. Moist meadows in the north of England and in Scotland. June—August. Perennial.

Common Parsnip. (**Peucedanum sativum, Benth. and Hook. fil.**)—Flowers small, bright yellow. Bracts 0; fruit oval, flattened from back to front, with 6 ridges, the united edges extended into a wing. [As just described in the genus Peucedanum.] Stem 1–5 feet high, erect, solid, furrowed, slightly branched, rough and hairy; and the leaves divided to the midrib into several pairs of egg-shaped, toothed, and sometimes lobed leaflets and 1 terminal one (imparipinnate); the leaf-stalks sheathing at the base. [*Plate* 58.
Common locally. Waysides, waste places, and pastures, abundant in chalky districts. July—August. Biennial.

COW-PARSNIP. (**HERACLEUM, LINN.**)—Flowers white or pinkish, in clusters of shortly-stalked flowers, the outer petals being larger, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts few or 0. Calyx with 5 teeth; petals 5, unequal, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval or round, composed of 2 united, 3-ridged cases, flattened from back to back, the united edges extended into a wing, each case containing 1 hanging seed (cremocarp). Large herbs with divided leaves and leaf-stalks sheathing at the base.

Common Cow-Parsnip, Hog-Weed. (**Heracleum Sphondylium, Linn.**)—The only British species (as just described). With large clusters of flowers varying from greenish- to pinky-white; a few bracts round the entire cluster and many round each little flower cluster; stout stems 18 inches to 6 feet high, hollow, furrowed, branched at the top; and leaves divided

COMMON
COW-PARSNIP
HOGS-WEED.
HERACLEUM
SPHONDYLIUM.
COMMON
PARSNIP,
PEUCEDANUM
SATIVUM.

to the midrib into from 1–3 pairs of broad, toothed, and often 3-lobed leaflets and 1 larger terminal one which is almost always 3-lobed (imparipinnate); the leaf-stalks with sheathing bases. [*Plate* 58.

Very common. Hedges, waste places, woods, meadows, &c. July—August. Perennial.

***HARTWORT. (TORDYLIUM, LINN.)**—Flowers white or pink, in small clusters of shortly-stalked flowers, the outer petals being larger, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts many, both of the entire and of each small flower cluster. Calyx with 5 teeth; petals 5, unequal, with the tip bent inwards, cleft; stamens 5; carpels 2. Fruit oval or round, without ridges, flattened from back to back, and extending into a narrow, thick wing, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs with divided leaves, and leaf-stalks sheathing at the base.

***Great Hartwort. (Tordylium maximum, Linn.)**—Not a native. As just described. Flowers small and pinkish, in small clusters; fruit hairy; stem 1–4 feet high, furrowed, hairy, with leaves divided to the midrib into 2–4 pairs of lance-shaped or oblong toothed leaflets and 1 terminal one (imparipinnate).

Very rare. Waste places at Oxford, Eton, and Isleworth. June—July. Annual.

***CORIANDER. (CORIANDRUM, LINN.)**—A genus consisting of one species—

***Coriander. (Coriandrum sativum, Linn.)**—Not a native. Flowers white or pink, in small clusters of shortly-stalked flowers, the outer petals being larger, all rising from the same point on longer stalks, which longer stalks all have one common starting-point on the main flowering-stalk (compound umbels). Bracts 0; calyx with 5 teeth; petals 5, unequal, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit round, smooth, crowned with the calyx-teeth, composed of 2 united, slightly 5-ridged cases, each containing 1 hanging seed (cremocarp). A herb 1–3 feet high, with its lowest leaves divided to the midrib into several pairs of leaflets and 1 terminal one, which are sub-divided in like fashion into broadly, egg-shaped, toothed leaflets (bi-imparipinnate); the upper leaves being similarly divided into very narrow leaflets and lobes.

The whole plant has a very disagreeable smell, but when dried the fruit is aromatic and is used in confectionery.

Rare. An escape from cultivation. Fields and waste places in the south and east of England. June. Annual.

CARROT. (DAUCUS, LINN.)—Flowers white, pink, or yellowish, in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts surrounding the entire cluster and each little flower cluster numerous, entire or lobed to the midrib (pinnatifid). Calyx with 5 teeth; petals 5; unequal, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval, flattened back to front, with 8 rows of prickles, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs with leaves divided and sub-divided to the midrib into several pairs of leaflets and 1 terminal one (bi- or tri-imparipinnate), and leaf-stalks sheathing at the base.

Wild Carrot. (Daucus Carota, Linn.)—As just described. The flowers white; the outer petals of each cluster larger, and the central flower of each entire cluster, which is flat or almost hollow, usually of a deep crimson-purple; the bracts surrounding the entire cluster

numerous, and deeply lobed to the midrib, so long as to reach the flowers; those round each little flower cluster numerous, small, and pointed, usually entire; the fruit covered with prickles, the entire clusters becoming deeply hollow, and closed in by the lobed bracts; the stem 1–3 feet high, erect, hairy, and tough; and the leaves hairy, divided to the midrib into several pairs of leaflets and 1 terminal one, and similarly sub-divided once or twice into narrow lobed leaflets (bi- or tri-imparipinnate). [*Plate* 59.

Common. Fields, waysides, waste places. July—August. Biennial.

Seaside Carrot. (**Daucus gummifer, Lam.**)—A species very similar to the Common Carrot (Daucus Carota), but with the clusters flat or rounded in fruit, the stems thicker and more prostrate, and the leaves rather fleshy.

Rare. Sea-shores in the south of England. July—August. Biennial.

BUR-PARSLEY. (**CAUCALIS, LINN.**)—Flowers white or pink, usually in clusters of shortly-stalked flowers, all rising from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts 0, or few, surrounding the entire cluster, 2–3, narrow and pointed, surrounding each little flower cluster. Calyx with 5 teeth; petals 5, with the tip bent inwards, apparently notched; stamens 5; carpels 2. Fruit oval, flattened slightly from side to side, covered with rows of prickles, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Hairy herbs, with leaves divided to the midrib into several pairs of leaflets and 1 terminal one (imparipinnate), which are sometimes again and again similarly divided (bi- or tri-imparipinnate), and the leaf-stalks sheathing at the base.

* **Great Bur-Parsley.** (**Caucalis latifolia, Linn.**)—Not a native. As just described. The flowers large, rose-pink, the outer petals of each cluster larger; the fruit large, oblong, with rows of long, straight, or hooked prickles; the stem 1–2 feet high, erect, hairy, furrowed, and hardly branched; the leaves divided to the midrib into several pairs of lance-shaped, toothed leaflets and 1 terminal one (imparipinnate); and the leaf-stalks sheathing at the base.

Very rare. Naturalised in cornfields on chalky soil in the south-east of England. July. Annual.

Small Bur-Parsley. (**Caucalis daucoides, Linn.**)—Flowers small, white or pink, each entire cluster consisting of from 2–4 small clusters of flowers, of which the outer petals are sometimes larger; bracts 0 or few; fruit large, oblong, covered with rows of hooked prickles. [As just described in the genus Caucalis.] Stem 6–18 inches high, erect, branched, and furrowed; the leaves divided to the midrib into several pairs of blunt, shortly-lobed leaflets and 1 terminal one (imparipinnate), the lower ones being again and again similarly divided (bi- or tri-imparipinnate); and the leaf-stalks sheathing at the base.

Rare. Cornfields on chalky soils in the south-east of England. June—July. Annual.

Spreading Hedge-Parsley. (**Caucalis arvensis, Huds.**)—Flowers white, tinged with pink, each entire cluster on a long, slender stalk, and composed of from 2–8 small clusters of flowers, the outer petals being slightly larger; bracts 1 or 0, round the entire cluster; the fruit oval, covered with short hooked bristles. [As just described in the genus Caucalis.] The stem 6 inches to 1 foot high, erect, much branched, hairy; and the leaves hairy, of the upper stem divided to the midrib into 1 or 2 pairs of lobed, toothed leaflets and 1 terminal one; of the lower stem similarly sub-divided (bi-imparipinnate); the leaf-stalks sheathing at the base.

Upright Hedge-Parsley. (**Caucalis Anthriscus, Huds.**)—Flowers white, often tinged with pink, each entire cluster on long, slender stalks, and composed of from 2–8 small clusters of flowers; several small and pointed bracts surrounding all the clusters; the fruit oval, covered

UPRIGHT
HEDGE-
PARSLEY
WILD
CARROT,
DAUCUS
CAROTA.
CAUCALIS
ANTHRISCUS
PEPPER
SAXI-
FRAGE
SULPHUR
WORT
SILAUS
FLAVESCENS

with numerous incurved, not hooked bristles. [As just described in the genus Caucalis.] The stem 2–3 feet high, erect, hairy, wiry, and branched; the leaves hairy, of the upper stem divided to the midrib into 1 or 2 pairs of leaflets and 1 terminal one, of the lower stem similarly divided and sub-divided, the leaflets being lobed and toothed; and the leaf-stalks sheathing at the base.

[*Plate* 59.

Knotted Hedge-Parsley. (Caucalis nodosa, Scop.)—Flowers small, pinkish white, the entire clusters, which are opposite the leaves, being very small, almost round, nearly stalkless, and composed of only 2–3 short flower clusters; no bracts; and the fruit smaller than in any of the other species, egg-shaped, the outer ones being covered with short, hooked bristles, and the inner ones with warts. [As described in the genus Caucalis.] The stem 6 inches to 2 feet long, prostrate and hairy; and the leaves divided to the midrib into several pairs of leaflets and 1 terminal one (imparipinnate), which are similarly sub-divided into small, narrow, lobed leaflets; the leaf-stalks sheathing at the base.

Common in the south of England. Dry, sunny banks. May—June. Annual.

PEPPER SAXIFRAGE. (SILAUS, BESS.)—Flowers yellowish- or greenish-white, in clusters of shortly-stalked flowers, all starting from the same point on longer stalks, which longer stalks have one common starting-point on the main flowering-stalk (compound umbels). Bracts variable. Calyx without teeth; petals 5, with the tip slightly bent inwards; stamens 5; carpels 2. Fruit oblong, not flattened, with 10 sharp, slightly winged ridges, composed of 2 united cases, each containing 1 hanging seed (cremocarp). Herbs with much divided leaves, and leaf-stalks sheathing at the base.

Pepper Saxifrage, Sulphur-wort. (Silaus flavescens, Bernh.)—The only British species (as just described). The flowers greenish-yellow; bracts 1 or 2; the fruit dark brown when ripe; the stems 1–3 feet high, solid and tough, slightly branched; and the leaves divided to the midrib, those of the root being several times similarly divided, all being of a dull dark green. [*Plate* 59.

Not common. Pastures and meadows. June—September. Perennial.

THE HONEYSUCKLE FAMILY

[ORDER XXXVII. CAPRIFOLIACEÆ]

THIS family is distinguished by the petals being united together at the base into a tube (monopetalous), and situated on the top of the calyx-tube and seedcase, which are united together (the seedcase thus forming an inferior fruit, which is usually a many-celled, few-seeded berry), and in its having no stipules at the base of its opposite leaves.

It is a small order, and is chiefly found in the Northern Hemisphere. It consists chiefly of trees and shrubs, the Guelder Rose, Weigela, Laurustinus, Snowberry, and different varieties of Honeysuckle forming some of our garden favourites. It is also interesting as containing the little plant (Linnæa borealis) dedicated to the great Swedish naturalist, Linnæus.

MOSCHATEL. (ADOXA, LINN.)—A genus consisting of the following one species, which is unlike any other plant—

Common or Tuberous Moschatel. (Adoxa Moschatellina, Linn.)—Flowers small, pale green, in a small, 4-sided head of 5 flowers on a long stalk, consisting of 1 terminal flower with a 2-lobed calyx, a 4-lobed, spreading corolla, 8 stamens, and 4 stigmas on very short styles; the 4 flowers forming the sides of the head having a 3-lobed calyx, a 5-lobed, spreading corolla 10 stamens, and 5 stigmas. Fruit a berry, round, fleshy, and pale green, containing 4 or 5 1-seeded cells, only 1 seed as a rule developing. Stem 2–8 inches high, erect, 4-angled, terminating in the head of flowers, with a single pair of opposite leaves some distance below, these leaves being very shortly stalked and divided to the base into 3 lobed leaflets, the long-stalked root leaves being similarly divided. A very fragile plant, with a slight musk-like scent. [*Plate* 60. Not uncommon. Woods and moist, shady banks. April—May. Perennial.

ELDER. (SAMBUCUS, LINN.)—Flowers small, numerous, white or pink, in large, flat clusters (corymbs). Sepals 5, combined with the seedcase, separating into 5 minute teeth; petals 5, united into a short tube and separating into 5 blunt, spreading lobes; stamens 5; carpels 3–5, united into a seedcase with 3–5 cells, crowned with the 3–5-lobed stigma. Fruit a berry. Trees and shrubs, rarely herbs, with opposite leaves, which are divided to the midrib into several pairs of toothed (serrate) leaflets and 1 terminal one (imparipinnate).

Common Elder. (Sambucus nigra, Linn.)—As just described. The flowers white or cream-coloured, in large, flat clusters 5–6 inches across. The fruit a large, flat cluster of round, polished, purple-black berries. A tree 20 feet high, or only a shrub, with the stem and branches full of pith; and the leaves divided to the midrib into 2 or 3 pairs of egg-shaped, pointed, toothed leaflets and 1 terminal one (imparipinnate).

THE HONEYSUCKLE FAMILY. (ORDER XXXVII. CAPRIFOLIACEÆ).

CALYX of 4-5 SEPALS, united into a small tube which is combined with the seedcase (ovary), & is usually surmounted by an entire or toothed border.

COROLLA of 4-5 PETALS, united into a tube and separating into the same number of lobes, inserted at the top of the calyx-tube (epigynous).

STAMENS 4-10, usually the same number as the petals or one less or rarely twice as many, & alternate with them, inserted on the corolla-tube (epipetalous).

PISTIL of 3-5 CARPELS, united into a 3-5-celled seed-case (ovary), with the same number of stigmas on short styles, or clustered together on 1 style, or situated on the seedcase the style being absent.

FRUIT a berry, generally fleshy, rarely dry, 1-5 celled, with 1 or 2, rarely more, seeds in each cell.

FLOWERS regular or irregular, in terminal clusters (heads, corymbs or panicles).

LEAVES opposite, without stipules.

DISTINGUISHED BY the stamens being inserted on the corolla-tube, & being equal in number to & alternate with the petals, by the fruit being a berry, & by the opposite leaves without stipules.

The flowers have a sickly scent and are used in the making of perfume, and one of the favourite home-made wines is brewed from the fruit.
Common. Hedges, woods, and thickets. June. Tree or shrub.

***Dwarf Elder, Danewort. (Sambucus Ebulus, Linn.)**—A similar shrub to the small species of the Common Elder, having smaller clusters of white, sweet-scented flowers which are tinted with purple on the outside, stems 2–4 feet high, and leafy stipules at the base of the leaf-stalks.
Not common. Woods and bushy places, especially near ruins. July—August. Shrub.

GUELDER ROSE. (VIBURNUM, LINN.)—Flowers white, in flat clusters (corymbs). Sepals 5, combined with the seedcase, with 5 free teeth; petals 5, united into a short tube and divided into 5 spreading lobes; stamens 5; carpels 3, united into a 3-celled seedcase, becoming 1-celled in fruit, and a 3-lobed stigma crowning the seedcase or borne on very short styles. Fruit a 1-seeded berry. Shrubs with undivided (simple) leaves, toothed (serrate), or lobed towards the base (palmatifid).

Common Guelder Rose. (Viburnum Opulus, Linn.)—As just described. The flowers small and white, in flat clusters 2–3 inches across, the outer flowers of each cluster being snow-white, without either stamens or carpels, and much larger than the inner flowers; the fruit a round, slightly flattened berry of a transparent, deep red, containing a 1-seeded stone. A small tree or shrub with the leaves broad, 2–3 inches across, lobed into 3–5 coarsely-toothed segments, on slender stalks which have 2 or more glands at the top and fringe-like stipules at the base.
Common. Moist woods and hedges. June. Tree or shrub.

Wayfaring-tree or Mealy Guelder Rose. (Viburnum Lantana, Linn.)—Flowers small, cream-white, all equal and perfect, in slightly roundish-topped clusters; fruit an oval, flattened, 1-seeded berry, red, turning black when ripe. [As just described in the genus Viburnum.] A large shrub, much branched, with the young shoots covered with a mealy down; and the leaves broadly egg-shaped, heart-shaped at the base, toothed, soft and velvety above and covered with white down underneath, without glands or stipules.
Local. Common in woods and hedges in chalky districts. May—June. Perennial.

LINNÆA. (LINNÆA, GRONOV.)—A genus consisting of one species, which is dedicated to Linnæus, the great botanist who first arranged and classified our plants—

Two-flowered Linnæa. (Linnæa borealis, Linn.) Flowers very graceful, bell-shaped and drooping, pale pink, 2 together on a long stalk. Sepals 5, united, separating into 5 lance-shaped teeth; petals 5, united into a bell-shaped tube and separating into 5 lobes; stamens 4, the 2 upper ones longer than the others; carpels 3. Fruit never ripening in the British Isles; a dry, 3-celled berry, each cell containing 2 seeds, of which only 1 ripens. Stems slender and trailing, rooting and throwing up short flowering branches 1–3 inches high; and the leaves small, egg-shaped, slightly toothed, opposite, evergreen.
Very rare. In fir woods in Northumberland and Scotland. July. Perennial.

HONEYSUCKLE. (LONICERA, LINN.)—Flowers yellow or whitish, often tinged with pink or red, stalkless (sessile), in terminal clusters (heads). Sepals 5, with 5 teeth; petals 5, united into a trumpet-shaped tube and separating into 2 lips, the upper with 4 and the under with 1 lobe; stamens 5; carpels 3, uniting into a 1–3-celled seedcase and a thread-like style bearing the stigma. Fruit a juicy, 1–3-celled berry. Shrubs twining or erect, with entire, opposite leaves.

Common Honeysuckle or Woodbine, Eglantine. (Lonicera Periclymenum, Linn.)—As just described. The flowers yellow inside, and red or streaked with red outside, in clusters of stalkless flowers, terminating the stem and branches; fruit an oval, crimson, juicy berry, containing 1–3 seeds; the stem woody, twining up other bushes to a considerable height; and the leaves egg-shaped or oblong, smooth above and downy beneath, stalkless or nearly so, in opposite pairs. Sweet-scented. [*Plate* 60.

Very common. In hedges and woods. June—August. Shrub.

***Pale Perfoliate Honeysuckle. (Lonicera Caprifolium, Linn.)**—Not a native. A very similar species to the Common Honeysuckle (Lonicera Periclymenum), but having stalkless clusters of pale yellow, stalkless flowers, and leaves with a bluish bloom, the upper pairs united at the base so that the stalk appears to pass through the leaves (connate). [*Plate* 60.

Rare. Naturalised in thickets in Essex and Cambridgeshire. June—July. Shrub.

***Upright Fly Honeysuckle. (Lonicera Xylosteum, Linn.)**—Not a native. [As described in the genus Lonicera.] Flowers much smaller than in the 2 preceding species, in pairs, pale yellow. An erect shrub, with egg-shaped, downy, stalkless leaves.

Rare. Copses and thickets. July. Shrub.

THE BEDSTRAW FAMILY

[ORDER XXXVIII. RUBIACEÆ]

[SUB-ORDER. STELLATÆ]

CALYX of 4 or 5 **SEPALS**, united into a small tube usually entirely combined with the seedcase, rarely separating into 4 or 5 teeth.

COROLLA of 4 or 5 **PETALS**, united at the base and separating into the same number of spreading lobes, inserted on the top of the calyx-tube (epigynous).

STAMENS, as many as the petals, inserted on the corolla-tube (epipetalous).

PISTIL of 2 **CARPELS**, united into a 2-celled seedcase (ovary), and a style 2-cleft at the top with a pin-head-like stigma on each branch.

FRUIT small and dry, rarely fleshy, 2-celled, usually separating into 2 1-seeded cases, decaying to free the seed (indehiscent).

FLOWERS small, growing in clusters terminating the stem and branches (corymbose cymes).

STEMS square.

LEAVES entire and opposite, apparently in clusters of 4, 6, or 8, arranged in a circle round each joint (node) on the stem (whorl). In reality only the 2 opposite ones are real leaves, the others are stipules, though precisely similar in appearance to the leaves.

DISTINGUISHED BY the clusters of small, star-like flowers, by the leaves being arranged in circles, and by the fruits being lobed in two and so apparently in pairs.

THE Bedstraw is distinguished from the Honeysuckle Family by the presence of stipules between the leaves, in many instances stipules so exactly like the leaves that they are popularly called leaves. This happens in the sub-order Stellatæ, the only sub-order represented in Great Britain. The leaves are then said to be in whorls, that is, arranged in circles round the joints of the stems.

The order is a very large and important one, though, as has just been stated, but poorly represented in the British Isles, and the specimens found are practically of no use. The large majority of species are tropical plants, very beautiful and often of great use to mankind. The sweet Gardenia and the delicate Bouvardia are examples of the lovely tropical species to be found in our greenhouses. The genus Coffæa supplies us with coffee, Cinchona with Peruvian bark, from which we obtain quinine, and Cephaelis Ipecacuanha with the drug ipecacuanha. A species of Madder (Rubia tinctoria) from southern Europe yields a valuable rose-red dye, and another species (Rubia cordifolia) of the same genus, from India, also yields a useful red dye.

MADDER. (**RUBIA, LINN.**)—Flowers small, yellowish, in few-flowered clusters, terminating the main stem and branches. Sepals 5, entirely combined with the seedcase, without teeth;

petals 5, united at the base and separating into 5 spreading, pointed lobes; stamens 5; carpels 2. Fruit of 2 round, fleshy cells, not separating from each other when ripe. Herbs with square stems and undivided leaves growing in a circle of 4–8 round each joint (whorls).

Wild Madder. (Rubia peregrina, Linn.)—The only British species (as just described). Flowers $\frac{1}{5}$ inch across, pale yellow; fruit a small black, 2-lobed berry; stem 1 to several feet in length, tough and woody, straggling; and the leaves undivided, oval and pointed, nearly stalkless, toothed, with each tooth ending in a bristle, green, polished, 4–6 in a circle round each joint. [*Plate* 61.

Rare. Not uncommon in the south-west of England, and Wales, in rocky and bushy places. June—August. Perennial.

BEDSTRAW. (GALIUM, LINN.)—Flowers small, white, yellow, or pink, in terminal clusters (cymes or panicles). Sepals 4, entirely combined with the seedcase or with 4 minute teeth; petals 4, united into a scarcely perceptible tube and separating into 4 flat, spreading, pointed lobes; stamens 4; carpels 2. Fruit small, round, dry, 2-celled, separating when ripe into 2 1-seeded cases. Herbs with weak, square stems, and stalkless (sessile), undivided leaves, 4–12 in a circle round each joint (node).

Northern or Cross-leaved Bedstraw. (Galium boreale, Linn.)—As just described. The flowers white, star-like, in leafy, oblong clusters (panicles); the fruit rough with hooked bristles, separating when ripe into 2 dry, 1-seeded cases; the stem 8–18 inches high, branched, tough, and square; and the leaves lance-shaped or narrower, with 3 ribs from base to tip, stalkless, 4 in a circle round each joint (node).

Not common. On moist rocks, especially in mountain districts in north Wales, and the north of England, and Scotland. July—August. Perennial.

Mugwort or Crosswort. (Galium Cruciata, Scop.)—Flowers pale yellow, in little stalked clusters in the axils of the leaves, forming circles round the stem inside the leaves. [As just described in the genus Galium.] Fruit smooth, almost fleshy, separating when ripe into 2 small, 1-seeded cases. Stems 6–18 inches long, weak, square, very hairy; with oval stalkless leaves, soft and downy, having 3 ribs, 4 in a circle round each joint (node). [*Plate* 61.

Very common. By the sides of cultivated fields and on banks. May—June. Perennial.

Yellow or Lady's Bedstraw. (Galium verum, Linn.)—Flowers numerous, bright yellow, in oblong, compact clusters. [As just described in the genus Galium.] Fruit, smooth, dry, separated into 2 very small, 1-seeded, dark-brown cases. Stems 6 inches to 2 feet long, erect or prostrate, much branched, and wiry; with very narrow, almost thread-like, stalkless leaves, abruptly pointed, 6–8 in a circle round each joint (node). [*Plate* 61.

Common, especially in sandy soil. Pastures and dry banks. June—September. Perennial.

Common Hedge Bedstraw. (Galium Mollugo, Linn.)—Flowers white, star-like, in loose clusters. [As just described in the genus Galium.] Fruit dry, smooth or slightly roughened, separating when ripe into 2 small, 1-seeded cases. Stems 1–2 feet high, square, thickened at the joints; with oblong, stalkless leaves, with bristly margins, usually 8 in a circle round each joint (node).

Common. On banks and roadsides. July—August. Perennial.

Upright Bedstraw. (Galium erectum, Huds.)—A very similar species to the last, with larger fruits, stems not thickened at the joints (nodes); and narrower, lanced-shaped leaves.

Rare. On banks and roadsides. June—September. Perennial.

Wall Bedstraw. (Galium anglicum, Huds.)—Another similar species to the Common Hedge Bedstraw (Galium Mollugo), but an annual, and smaller in all ways, the flowers being

LADY'S BED-STRAW.
GALIUM VERUM.
GOOSE-GRASS, CLEAVERS,
HEATH BED-STRAW,
GALIUM SAXATILE.
GALIUM CRUCIATA.
MUG-WORT.
whole flower.
calyx,
petals & stamens,
pistil,
fruit,
of Sweet Woodruff.
SWEET WOODRUFF.
ASPERULA ODORATA.
WILD MADDER.
RUBIA PEREGRINA.
GALIUM APARINE.
FIELD MADDER.
SHERARDIA ARVENSIS.

very minute and inconspicuous, the fruit smaller than in any other British species, the stem slender and rough, about 6 inches long.

Rare. Dry, sandy places and old walls in the eastern counties. June—July. Annual.

Heath Bedstraw. (Galium saxatile, Linn.)—Flowers very small, white, star-like, in compact, short clusters. [As described in the genus Galium.] Fruit dry, roughened, separating into 2 very small, 1-seeded cases. Stems 5–6 inches long, prostrate, numerous, much branched and weak, growing in dense tufts; with very small, oblong, stalkless leaves, abruptly pointed, smooth, fringed with small prickles, 6 growing in a circle round each joint (node). [*Plate* 61.

Common. On heaths and commons. June—August. Perennial.

Slender or Mountain Bedstraw. (Galium sylvestre, Poll.)—A very similar species to the last, but stiffer and more erect, with circles of 6–8, usually 8, narrower leaves.

Rare. Limestone uplands and hills. June—August. Perennial.

Water Bedstraw or Marsh Bedstraw. (Galium palustre, Linn.)—Flowers white, star-like, in few-flowered, loose clusters. [As described in the genus Galium.] Fruit dry and slightly roughened (shagreened), dividing when ripe into 2 small, 1-seeded cases. Stems 1–3 feet high, square, weak, straggling, and much branched; with narrow, blunt, stalkless leaves, often rough on the edges, shining, 4–6 growing in a circle round each joint (node).

Very common. Watery places. June—August. Perennial.

Rough Marsh Bedstraw or Swamp Bedstraw. (Galium uliginosum, Linn.)—A very similar species to the last, but smaller, with smaller clusters of flowers; fruit rougher; stems more erect, shorter, brittle, and square, with prickles on the angles; and 6–8 stalkless leaves with prickly margins, in a circle round each joint (node).

Common. Watery places. July—August. Perennial.

Goose-Grass or Cleavers. (Galium Aparine, Linn.)—Flowers white, in clusters generally of 2–5 together, rising from the axils of the leaves. [As described in the genus Galium.] Fruit dry, rough, covered with short hooked bristles, separating when ripe into 2 small, 1-seeded cases. Stem 1–5 feet long, square, and slightly thickened at the joints, straggling, light green, the angles rough with hooked prickles; leaves narrow or lance-shaped, stalkless, often an inch or more long, rough with hooked prickles, 6–8 in a circle round each joint (node).

A favourite food of geese. [*Plate* 61.

Very common. Hedges and waste or cultivated ground. June—July. Annual.

Hispid-fruited Corn Bedstraw. (Galium Vaillantii, DC.)—A very similar species to the Goose-grass (Galium Aparine), but with very small, greenish flowers, and stems, leaves, and fruit less prickly.

Very rare. In fields near Saffron Walden, Essex, and Warwickshire. July. Annual.

Rough-fruited Corn Bedstraw. (Galium tricorne, Stokes.)—Another similar species to the Goose-grass (Galium Aparine), but with the flowers smaller, of a yellower-white, in clusters of 3; the fruit larger, rough, but without hooked prickles, drooping; and the stem and leaves smaller.

Not common. Dry, chalky fields. June—October. Annual.

WOODRUFF. (ASPERULA, LINN.)—Differing from the Bedstraw (Galium) mainly in the petals being united at the base into a tube as long as or longer than the lobes. Flowers white, pink, or blue, in clusters (cymes or panicles). Sepals 5, entirely combined with the seed-case or with 5 minute teeth; petals 4, rarely 3, united at the base into a funnel- or bell-shaped tube, and separating into the same number of lobes; stamens 4; carpels 2. Fruit small, dry,

round, 2-celled, separating when ripe into 2 1-seeded cases. Herbs with square, weak stems, and stalkless (sessile), undivided (simple) leaves, growing in circles of 4–12 round each joint (whorls).

Sweet Woodruff. (Asperula odorata, Linn.)—As just described. The flowers ¼ inch across, white, in terminal clusters; the fruit separating into 2 round, 1-seeded cases covered with white hairs. Stems 6–18 inches high, square, brittle, hairy below each joint; with lance-shaped leaves, fringed with hairs, polished, stalkless, 6–9 in a circle round each joint. When dried having the scent of new-mown hay. [*Plate* 61.

Common. Woods and banks. May—June. Perennial.

***Four-leaved Woodruff. (Asperula taurina, Linn.)**—Not a native. Flowers ¼ inch across, flesh-colour, with stamens with long filaments. [As described in the genus Asperula.] Fruit without hairs but rough. Stems 6 inches to 2 feet high, with egg-shaped leaves, 4 in a circle round each joint.

Very rare. An escape from cultivation. May—June. Perennial.

Quinsey-wort. (Asperula cynanchica, Linn.)—Flowers white or pink, in little clusters terminating the stems. [As described in the genus Asperula.] Fruit without hairs, rough. Stems 2–8 inches high, with narrow, stalkless, unequal leaves, 4 in a circle round each joint.

Common on downs, especially on chalk or limestone. June—August. Perennial.

***Blue Field Woodruff. (Asperula arvensis, Linn.)**—Not a native. Flowers blue, in small, close clusters, with stamens with long filaments. [As described in the genus Asperula.] Fruit smooth, without hairs. Stems 3–12 inches high, weak and slightly hairy, with very narrow leaves with hairy margins, 6–8 in a circle round each joint.

Very rare. An escape from cultivation. June—July. Perennial.

FIELD MADDER. (SHERARDIA, LINN.)—Differing from the Bedstraws in having the long tube, like the Woodruff, and fruit crowned with the calyx-teeth. A genus consisting of only one species—

Common Field Madder. (Sherardia arvensis, Linn.)—Flowers ⅛ inch across, pale lilac, stalkless, 4–8 growing in round, flat clusters, surrounded by a number of leaf-like bracts. Sepals 4–6, combined with the seedcase and separating into 5 teeth; petals 4, united at the base into a long tube and separating into 4 spreading lobes; stamens 4. Fruit small, dry, round, 2-celled, crowned with the 4–6 calyx-teeth, separating when ripe into 2 1-seeded cases. Stems 3–18 inches high, square, hairy, numerous, spreading; with narrow leaves, abruptly pointed, hairy, 4–6 in a circle round each joint. [*Plate* 61.

Common. In waste places, sides of fields, and cultivated ground. May—October. Annual.

THE VALERIAN FAMILY

[ORDER XXXIX. VALERIANEÆ]

THE Valerian Family is distinguished from the other families that have the petals united at the base into a tube which is inserted on the top of the calyx-tube and above the seedcase (which is therefore inferior), by its small number of stamens (in the British species 3 or 1), and its small, seed-like, inferior fruit.

It is a small order of herbs, growing chiefly in temperate climates, sometimes at great heights. Among those native to Britain the root of the Great Wild Valerian is a powerful drug, considerably used in medicine, and the Lamb's Lettuce (Valerianella), is used as a salad. Abroad are to be found some very aromatic sweet-scented species. The precious Spikenard, spoken of in the Bible, is prepared from the roots and leaves of one species (Nardostachys Jatamansi), and several others are useful in the preparation of scent.

VALERIAN. (VALERIANA, LINN.)—Flowers small, usually numerous, white or pink, often with stamenless (female) flowers on one plant and carpelless (male) on another (dicœcious), in terminal clusters (corymbose cymes). Calyx-tube combined with the seedcase, with a border which in fruit develops into a feathery ring and crowns the fruit; petals 5, united into a short tube, not spurred, and separating into 5 short lobes; stamens 3; carpel 1. Fruit small and dry, crowned with the feathery calyx-border, 1-celled, and containing 1 hanging seed. Herbs with opposite, entire or divided leaves.

Small Marsh Valerian. (Valeriana dioica, Linn.)—As just described. Flowers on one plant $\frac{1}{6}$ inch across, palest pink, without carpels, and collected into a loose cluster; on another much smaller, deeper in colour, without stamens, and collected into a compact round cluster, with deeply 3-cleft stigmas; stem 6–18 inches high, smooth; the stem leaves stalkless, and lobed towards the midrib, with a large terminal lobe (lyrately-pinnatifid), and the root leaves egg-shaped, on long stalks. [*Plate* 62.

Not uncommon. Marshy ground. May—June. Perennial.

Great Wild Valerian. (Valeriana Mikanii, Syme.)—Flowers $\frac{1}{6}$ inch across, with stamens and carpels, pale pink, in terminal flat clusters (corymbose cymes). [As described in the genus Valeriana.] Stem 2–5 feet high, stout, ribbed, and hairy towards the base, with the leaves all divided to the midrib into 6–10 pairs of toothed, narrow leaflets and 1 terminal one (imparipinnate).

Not common. Damp meadows and woods, by the sides of streams. June—July. Perennial.

Elder-leaved Valerian. (Valeriana sambucifolia, Willd.)—A very similar species, differing in having only 4–6 pairs of broader leaflets.

Not common. Damp meadows and woods, by the sides of streams. June—July. Perennial.

***Heart-leaved Valerian. (Valeriana pyrenaica, Linn.)**—A very similar species to the Great Wild Valerian (Valeriana Mikanii), but stouter and taller, with very large, coarsely-toothed, heart-shaped root leaves on long stalks, and stem leaves divided to the midrib into 1 or 2 pairs of small leaflets and 1 large terminal one (lyrately-imparipinnate).
Not a native. Woods in the middle and south of Scotland, and in a few places in England. June—July. Perennial.

***SPUR-VALERIAN. (CENTRANTHUS, DC.)**—Flowers small, stalkless (sessile), red, pink, or white, in terminal clusters (corymbose cymes). Calyx-tube combined with the seedcase, with a border which in fruit develops into a feathery ring and crowns the fruit; petals 5, united into a long, slender tube, which is lengthened at the base into a little spur, and separating into 5 spreading lobes; stamen 1; carpel 1. Fruit small and dry, crowned with the feathery calyx-border, composed of 1 cell containing 1 hanging seed. Smooth herbs with undivided or divided leaves.

***Red Spur-Valerian. (Centranthus ruber, DC.)**—Not a native. As just described. Flowers red, pink, or white. Stems 1–2 feet high, smooth and hollow; leaves lanceolate, opposite, the lower stalked and entire, the upper stalkless, sometimes slightly clasping the stem, usually toothed. [*Plate* 62.
Fairly common. An escape from cultivation found on old walls, chalk-pits, and banks. June—September. Perennial.

***Cut-leaved Valerian. (Centranthus Calcitrapa, Dufr.)**—Not a native. Flowers minute, pale pink, with the spur of the corolla-tube reduced to a knob, otherwise as just described in the genus Centranthus. The leaves deeply lobed to the midrib (pinnatifid).
Very rare. A garden escape established on old walls at Eltham, Kent. June—July. Annual.

CORN-SALAD. (VALERIANELLA, MŒNCH.)—Flowers minute, stalkless (sessile), white, or pale lilac, or blue, in small, compact clusters, or solitary in the forks of the branches. Calyx-tube combined with the seedcase, the border toothed, not feathery; petals 5, united into a short tube and separating into 5 spreading lobes; stamens 3; carpels 3. Fruit small, dry, 3-celled, only 1 cell containing 1 hanging seed. Small herbs with repeatedly forked branches and undivided (simple) leaves.

Common Corn-salad or Lamb's Lettuce. (Valerianella olitoria, Poll.)—As just described. The flowers very small, pale lilac, in small, dense, terminal clusters, $\frac{1}{2}$–$\frac{1}{4}$ inch across, each cluster surrounded with small, narrow bracts; the fruit roundish, compressed from side to side, with 2 ribs, containing 1 hanging seed with a corky mass on one side and an empty cell on the other; stems 4–12 inches high, juicy, much branched, with the branches repeatedly forked; the leaves oblong, blunt, with a few coarse teeth at the base; those of the upper stem narrower, more toothed, and usually clasping the stem. [*Plate* 62.
Not uncommon. Cornfields, banks, waste and cultivated places. May—June. Annual.

***Keeled-fruited Corn-salad. (Valerianella carinata, Loisel.)**—Not a native. Differing from the Common Corn-salad (Valerianella olitoria) in having bluer flowers and in the oblong, boat-shaped fruit, which has 2 inflated, empty cells, not corky, and 1 containing 1 seed.

Sharp-fruited Corn-salad. (Valerianella rimosa, Bast.)—Flowers in small clusters or solitary in the forks of the branches. [As described in the genus Valerianella.] Fruit roundish, crowned with the calyx-border, containing 2 inflated, empty cells, and 1 containing

VALERIAN FAMILY. (ORDER XXXIX. VALERIANEÆ.)

CALYX composed of a tube & border, the tube being combined with the seedcase, the border rolled inwards in flower & separating into teeth or a feathery border (pappus) in fruit.
COROLLA of 5 PETALS, united into a tube & separating into 5 lobes (in the British species), the tube being sometimes pouched or spurred at the base, inserted in the throat of the calyx-tube (epigynous).
STAMENS 1 or 3, rarely 5, inserted low down on the corolla-tube (epipetalous).
PISTIL of 1-3 CARPELS, united into a seedcase (ovary), a thread-like style & 2-3 united or free stigmas.
FRUIT small & dry, crowned with the teeth or feathery border of the calyx, 3-celled with 1 cell only containing 1 hanging seed, decaying to free the seed (indehiscent).
FLOWERS small, usually white, red, pink or lilac, in clusters terminating the stem & branches (cymose corymbs or heads).
LEAVES opposite & without stipules.
DISTINGUISHED BY the tubular corolla separating into 5 lobes, the stamens always fewer (in the British species) than the petals, & by the small, dry, seed-like fruit situated beneath the rest of the flower.

Parts of Small Marsh Valerian.

1 seed. Stems 1 foot high, slender and wiry, repeatedly branched; with the lower leaves narrow, blunt, and entire, and the upper leaves narrow and pointed, generally toothed at the base.
Rare. Cultivated fields and waste lands. June—August. Annual.

Narrow-fruited or Toothed Corn-salad. (Valerianella dentata, Poll.)—A very similar species to the last, but with a different fruit, roundish, and crowned with the calyx-border, the seed occupying the whole of the interior, the 2 empty cells being reduced to 2 ribs.
Not uncommon. Cornfields and banks. June—August. Annual.

***Woolly-fruited Corn-salad. (Valerianella eriocarpa, Desv.)**—Not a native. A very similar species to the last, the Toothed Corn-salad (Valerianella dentata), but differing in the seed being hairy and the calyx-border crowning it being large and cup-shaped.
Very rare. Introduced into cultivated ground and waysides. June. Annual.

THE TEAZLE FAMILY

[ORDER XL. DIPSACEÆ]

THIS family is characterised by its small stalkless flowers, crowded together in a dense mass or head on the top of the flower-stalks. It is distinguished from the Daisy Family (Compositæ) by the stamens being free, not united by their filaments into a tube. Each individual flower is somewhat similar to those of the last three orders. The petals are 4 or 5 in number, united at the base into a tube, which is inserted on the top of the calyx-tube above the seedcase, the two latter adhering together and so producing an inferior fruit, which is small and dry. The fruits, like the flowers, are crowded together into a head.

It is a small order of herbs found in the temperate regions of the Old World, without any species of any great value. The heads of the Fuller's Teazle (Dipsacus Fullonum) are used in the dressing of woollen cloth. There have been attempts to supersede its use by the employment of machinery, but all have failed. The dried cylindrical heads of flowers, which are covered with stiff hooked spines, are fixed in a cylinder, which, revolving rapidly, dresses the surface of the cloth, removing all loose particles of wool and raising the nap without injuring the fabric, as the fine hooks break directly they are held by the real substance of the cloth.

TEAZLE. (DIPSACUS, LINN.)—Flowers small, stalkless, lilac or whitish, in oblong or round clusters (heads), surrounded with stiff, spreading, spiny bracts (involucre). Calyx-tube combined with the seedcase, with a small cup-shaped border; petals 4, united into a funnel-shaped tube and separating into 4 lobes; stamens 4; carpel 1. Fruit small and dry, crowned with the cup-shaped calyx-border, composed of 1 cell containing 1 hanging seed. Tall biennial herbs, prickly or hairy, with opposite, stalkless leaves usually joined together at the base (connate) and forming hollows, in which the water lies, and so preventing insects from crawling up the stem and stealing the honey, which is an enticement for winged insects, which, entering the flower from outside, carry the pollen from flower to flower.

Wild Teazle. (Dipsacus sylvestris, Huds.)—As just described. The flowers small, numerous, lilac, in large, oblong, spiny clusters (heads), surrounded with upcurved, long, but very unequal, stiff, spiny bracts; the fruits all massed together in a remarkably spiny head; the stem 3–6 feet high, erect, stout, angular, prickly, and the leaves long and lance-shaped, stalkless, opposite, entire or coarsely toothed, the upper ones united at the base (connate). [*Plate* 63. Common. Waste places, banks of streams, waysides. July—September. Biennial.

Small Teazle. (Dipsacus pilosus, Linn.)—A similar plant, but altogether smaller and softer, the flowers white, in small, round, hairy heads, drooping in bud, surrounded with reflexed

THE TEAZLE FAMILY. (ORDER XL. DIPSACEÆ)

CALYX expanding into a tube combined with the seedcase, & a cup-shaped border either toothed or entire.

COROLLA of 4 or 5 PETALS united into a tube & separating into the same number of lobes, often of unequal size. inserted on the throat of the calyx-tube.

STAMENS 4, inserted on the corolla-tube, the anthers not united as they are in the Daisy Family.

PISTIL of 1 CARPEL with the style thread-like & the stigma entire or 2-lobed.

FRUIT small & dry, 1-celled and 1-seeded, crowned with the calyx-border.

FLOWERS small, stalkless, crowded together into a dense mass or head on the top of the flower-stalk which is rounded & lengthened (receptacle), & surrounded by one or more rows of bracts (involucre) looking like an outer calyx.

LEAVES opposite, without stipules.

DISTINGUISHED BY the flowers being clustered in heads surrounded by bracts, by their having tubular corollas & 4 stamens which are not united & by the opposite leaves.

FIELD SCABIOUS, SCABIOSA ARVENSIS

DEVILS BIT SCABIOUS

SCABIOSA SUCCISA.

COMMON TEAZLE, DIPSACUS SYLVESTRIS.

fruit & seed

calyx

pistil

section of flower shewing

petals & stamens

shorter bracts; the stem shorter, 2–4 feet high, bristly rather than spiny; and the leaves usually with 2 very small lobes at the base.
Not common. In damp places, ditches, and shady waste ground. August—September. Biennial.

SCABIOUS. (**SCABIOSA, LINN.**)—Flowers small, stalkless, lilac, purple, white, red, or yellow, clustered together in round or flattened heads, the outer flowers often being larger and irregular, each head of flowers surrounded with 1 or 2 rows of small, leafy bracts (an involucre). Calyx-tube combined with the seedcase (ovary), with a cup-shaped border, which has 4, 5, or more teeth or bristles; petals 4 or 5, united into a funnel-shaped tube, and dividing into 4 or 5, often unequal lobes; stamens 4; carpel 1. Fruit small and dry, crowned with the cup-shaped calyx-border which has 4, 5, or more teeth or bristles, 1-celled, containing 1 seed. Herbs without prickles and with opposite leaves.

Devil's-bit Scabious. (**Scabiosa Succisa, Linn.**)—As just described. The flowers purplish-blue or white, with the 4 corolla lobes equal, clustered in round heads on long stalks; the stems 1–2 feet high, slender, slightly branched and hairy; the leaves of the root stalked, oblong, not toothed; those of the stem without stalks, few, narrower, and toothed. The root short and abrupt, as if it had been bitten off—hence the name. [*Plate* 63.
Very common on heaths, commons, and mountain-sides. July—October. Perennial.

Small Scabious. (**Scabiosa Columbaria, Linn.**)—Flowers lilac, the corollas 5-lobed and unequal, stalkless, clustered in flattish heads on long stalks, the outer flowers larger and the corolla lobes very unequal. [As just described in the genus Scabiosa.] Stems 1–2 feet high, slender, branched, and slightly hairy; the leaves deeply lobed towards the midrib into narrow segments which are sometimes again lobed (pinnatifid or bi-pinnatifid).
Common on chalky soils. Dry banks and pastures. July—September. Perennial.

Field Scabious. (**Scabiosa arvensis, Linn.**)—A very similar species. The flowers lilac, stalkless, the corollas 4-lobed and unequal, clustered in large, flattish heads on long stalks, the outer flowers larger and with very unequal corolla lobes; the stems 1–3 feet high, simple or branched, and hairy, and the leaves variable, usually with the root leaves stalked, lance-shaped and toothed, the lower stem leaves without stalks, and lobed, and the upper ones entire. [*Plate* 63.
Common on chalky soil. Dry banks and sides of fields. July—September. Perennial.

Seaside Scabious. (**Scabiosa maritima, Linn.**)—A very similar species to the Field Scabious, with a 5-lobed corolla, and all its leaves deeply lobed to the midrib.
Very rare. Found at St. Ouen's Bay, Jersey. July—September. Perennial.

THE DAISY FAMILY

[ORDER XLI. COMPOSITÆ]

THE Daisy Family is one which is very easily recognised, as the little flowers are always clustered together in heads and the anthers of the stamens are united round the style of the pistil. It is the largest of all the orders, and may be found all over the world.

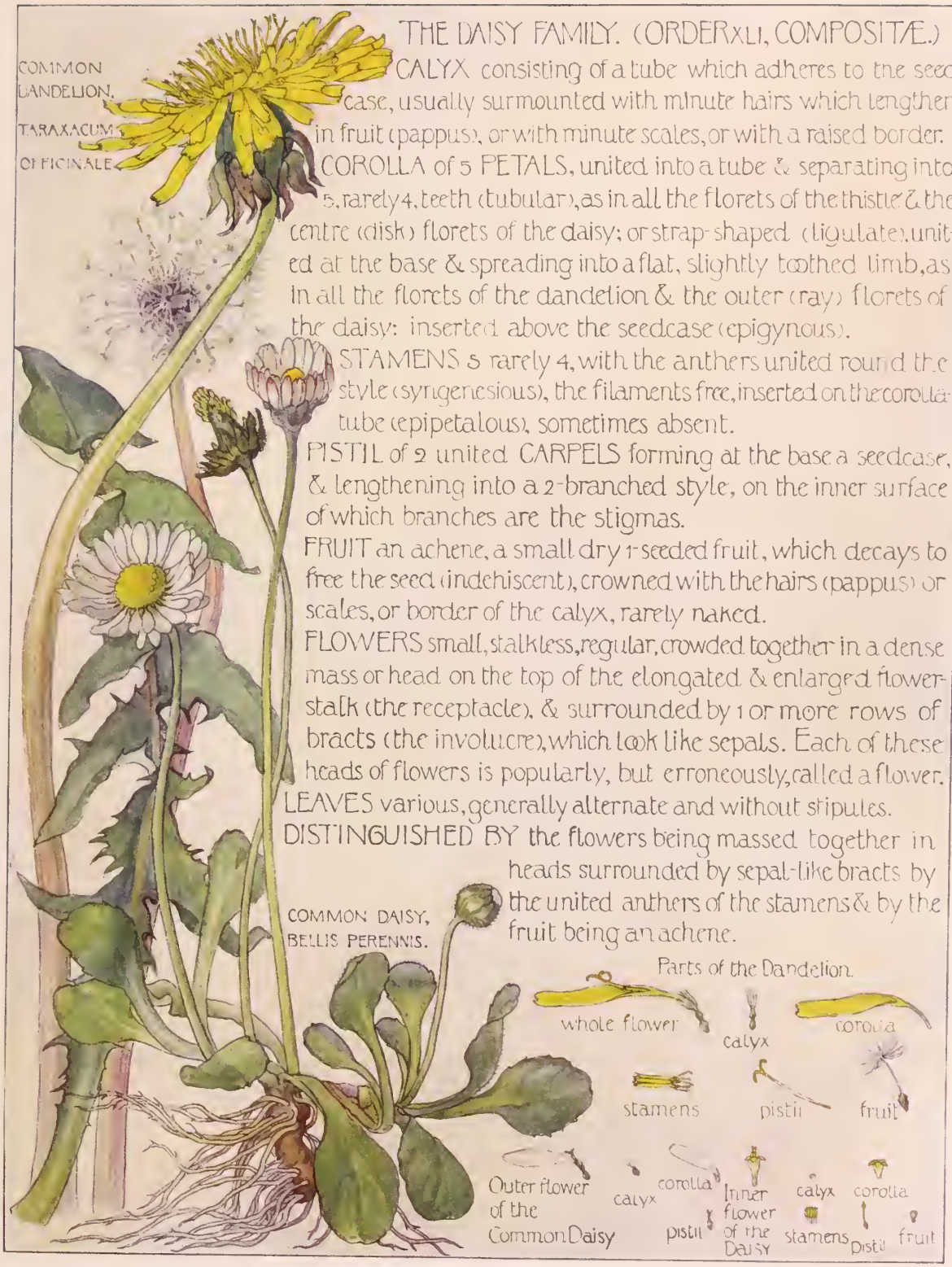
Many of our British species were largely used in medicine and are still in use by country folk who distil their own drugs. Extracts of Golden Rod (Solidago Virgaurea), Hemp Agrimony (Eupatorium cannabinum), Chamomile (Anthemis) and Feverfew (Chrysanthemum Parthenium), Tansy (Tanacetum vulgare), Colt's-foot (Tussilago Farfara), Chicory (Cichorium Intybus), Dandelion (Taraxacum officinale), and Lettuce (Lactuca) were formerly considered valuable medicinally. All, except the Dandelion and Chamomile, have now been superseded by other preparations.

Lettuce (Lactuca) is invaluable among our salad vegetables: one of the Chicories—Endive (Cichorium Endivia)—is largely used, and its British ally, Chicory (Cichorium Intybus), is now and then employed in a like manner, and is cultivated as a fodder abroad. Salsafy (Tragopogon porrifolius) too is classed among our salads. The roots of Chicory (Cichorium Intybus) are better known as an objectionable adulteration with coffee. As a thing of beauty, perhaps, this family is of greater value than as a thing of use. Our gardens and fields, our roadsides and waste places, would be the poorer indeed without the daisy and dandelion, the corn marigold and cornflower, the ragworts, yarrow, thistles, colt's-foot and cat's-ear. The cultivated species of this order form the basis of most of our gardens, including the various forms of daisy (Bellis and Chrysanthemum), Aster, Sunflower, Pyrethrum, Gaillardia, Coreopsis, Knapweed and Cornflower (species of Centaurea), Hawkweed, Thistle, Dahlia, French and African Marigold, Zinnia, and many others.

HEMP AGRIMONY. (EUPATORIUM, LINN.) Flower-heads small, few-flowered, collected together in dense terminal clusters (compound corymbs). Florets all tubular and perfect, white, or pink to blue. Flower-bracts few, oblong. Calyx-tube surmounted with minute hairs; petals 5, united into a tube and separating into 5 short teeth; stamens 5, with the anthers united; carpels 2, united, with the style deeply cleft into 2 long branches, much longer than the corolla. Fruit an achene tipped with the calyx-hairs (pappus). Perennial herbs with the leaves generally opposite, often sprinkled with resinous dots.

Common Hemp Agrimony. (Eupatorium cannabinum, Linn.)—The only British species (as just described). Florets bright pink in bud, becoming paler and duller when open, anthers brown, styles white. Stem 3–6 feet high, reddish, downy. Leaves deeply lobed from the base (palmately lobed) into from 3–5 leaflets, which are broadly lance-shaped (lanceolate), toothed (serrate), and downy. Aromatic. [*Plate* 65.

Common in moist places. July—September. Perennial.



COMMON DANDELION. TARAXACUM OFFICINALE

COMMON DAISY. BELLIS PERENNIS.

THE DAISY FAMILY. (ORDER XLI, COMPOSITÆ.)

CALYX consisting of a tube which adheres to the seed case, usually surmounted with minute hairs which lengthen in fruit (pappus), or with minute scales, or with a raised border.

COROLLA of 5 PETALS, united into a tube & separating into 5, rarely 4, teeth (tubular), as in all the florets of the thistle & the centre (disk) florets of the daisy; or strap-shaped (ligulate), united at the base & spreading into a flat, slightly toothed limb, as in all the florets of the dandelion & the outer (ray) florets of the daisy: inserted above the seedcase (epigynous).

STAMENS 5 rarely 4, with the anthers united round the style (syngenesious), the filaments free, inserted on the corolla-tube (epipetalous), sometimes absent.

PISTIL of 2 united CARPELS forming at the base a seedcase, & lengthening into a 2-branched style, on the inner surface of which branches are the stigmas.

FRUIT an achene, a small dry 1-seeded fruit, which decays to free the seed (indehiscent), crowned with the hairs (pappus) or scales, or border of the calyx, rarely naked.

FLOWERS small, stalkless, regular, crowded together in a dense mass or head on the top of the elongated & enlarged flower-stalk (the receptacle), & surrounded by 1 or more rows of bracts (the involucre), which look like sepals. Each of these heads of flowers is popularly, but erroneously, called a flower.

LEAVES various, generally alternate and without stipules.

DISTINGUISHED BY the flowers being massed together in heads surrounded by sepal-like bracts by the united anthers of the stamens & by the fruit being an achene.

Parts of the Dandelion.

whole flower
calyx
corolla
stamens
pistil
fruit

Outer flower of the Common Daisy
calyx
corolla
pistil

Inner flower of the Daisy
calyx
corolla
stamens
pistil
fruit

FILAGO. (FILAGO, LINN.)—Flower-heads small, numerous, several-flowered, stalkless (sessile), in tight clusters terminating the stems. Florets all tubular, those in the centre perfect, surrounded by several rows of stamenless (female) florets with hair-like corollas. Flower-bracts in several rows, few, membranous, long, and pointed. Calyx-tube tipped with hairs; petals 5, united into a tube and separating into 5 short teeth, or hair-like in the female florets; stamens 5, with the united anthers with bristles (tails) at their base, or 0; carpels 2, united; fruit a head of achenes, each achene tipped with the calyx-hairs (pappus). Annual herbs with alternate, entire, small, woolly leaves.

Common Filago. (Filago germanica, Linn.)—As just described. Flower-heads about ½ inch across, in dense, round terminal clusters; the florets 20–40 in each head, yellowish, half sunk in wool, and shorter than the flower-bracts, which are smooth, with yellowish, membranous tips and form a yellowish-brown angular involucre; the stem 3 inches to 1 foot high, erect, cottony, terminating in a roundish woolly cluster of flower-heads, from the base of which spring two or more branches, each terminating in a similar flower cluster; the leaves erect, narrow, wavy, and woolly. [*Plate* 65.

This plant used to be called "Herba Impia" (the undutiful plant), from its curious method of branching, as if the offshoots were guilty of disrespect to their parent by over-topping it.

Common on mountain-sides, dry gravelly pastures. July—August. Annual.

Red-tipped Filago. (Filago apiculata, G.E. Sm.)—Very like the Common Filago (Filago germanica), and often regarded merely as a variety. It differs in its larger, more sharply 5-angled clusters of flower-heads, which have fewer florets half sunk in cottony wool; its red-tipped bracts; its taller, more slender stems; in the whole plant being yellower; and the primary clusters of heads being over-topped by one or two leaves; the leaves oblong, abruptly pointed.

Rare. Sandy places. July—August. Annual.

Spathulate Filago. (Filago spathulata, Presl.)—Also resembling the Common Filago (Filago germanica), and also often regarded merely as a variety. It differs in its larger, sharply 5-angled clusters of flower-heads, with the base of the florets only sunk in the wool; in the flower-bracts with straw-coloured membranous tips; the primary cluster of heads overtopped by 2–5 broader leaves; and in the whole plant being shorter, whitish, and covered with hoary, silky wool.

Not common. Dry fields. July—August. Annual.

Lesser Filago. (Filago minima, Fr.)—Another similar plant, with smaller, more numerous flower clusters, of a brownish-yellow, not sunk in wool nor overtopped by leaves; the stem 1–9 inches high, wiry, more irregularly branched at the top; the leaves smaller, strap-shaped (linear-lanceolate), pointed, cottony. The whole plant greyish.

Fairly common in dry, gravelly places. June—September. Annual.

* **Narrow-leaved Cudweed. (Filago gallica, Linn.)**—Not a native. Similar to the Lesser Filago, but with the flower-heads overtopped by narrow awl-shaped leaves and the stem more branched.

Not a native, found in sandy fields in Essex, Herts, and Berkshire, in Ireland, and the Channel Isles. July—September. Annual.

EVERLASTING. (ANTENNARIA, GÆRTN.)—Flower-heads solitary or in clusters. Florets small, all tubular, without pistils (male) on one plant, and without stamens (female) and the corolla reduced to hairs on another plant. Flower-bracts membranous, and very noticeable, grey, brown, yellow, white, or rose-colour. Calyx-tube surmounted with minute hairs; petals 5,

united into a tube and separating into short teeth or reduced to hairs; stamens 5, with the anthers united, or 0; carpels 2, united, or 0. Fruit an achene tipped with the calyx-hairs (pappus). Woolly perennials with alternate, entire leaves.

Mountain Everlasting or Cat's-foot. (Antennaria dioica, R. Br.)—The only British species (as just described). Flower-heads few, 2–5, in a flat cluster (corymb). Noticeable from the "everlasting" membranous white or rose-coloured flower-bracts (involucre) which survive the flowers and leaves; the leaves are strap-shaped, green above and cottony beneath.
Common in the North of England, in Wales, and Ireland, on heaths and mountains. June—August. Perennial.

***EVERLASTING. (ANAPHALIS, DC.)**—A similar genus to the last, represented by the garden **Pearly Everlasting (Anaphalis margaritacea)**. It is not a native, but an escape from cultivation. The flower-heads are numerous, in flat terminal clusters, the bracts are broad and white, the florets yellowish, the stem 2–3 feet high, and the leaves narrow and pointed.
Very rare. Naturalised in South Wales, Scotland, and the Channel Isles. July—August. Perennial.

CUDWEED. (GNAPHALIUM, LINN.)—Flower-heads small, solitary or in clusters (corymbs). Florets all tubular, minute, the outer without stamens (female) and with the tubular corolla reduced to hairs; the inner without pistils (male). Flower-bracts membranous, frequently coloured. Calyx-tube tipped with hairs; petals 5, united into a tube and separating into 5 short teeth, or hair-like (filiform) in the female florets; stamens 5, with the united anthers with bristles (tails at their base), or 0; carpels 2, united, or 0. Fruit an achene, tipped with the slender, silky calyx-hairs (pappus). Small cottony herbs with alternate, entire, slender leaves.

Marsh Cudweed. (Gnaphalium uliginosum, Linn.)—As just described. Flower-heads in dense terminal clusters, surrounded and overtopped by leaves. Florets yellowish-brown. Flower-bracts shining, membranous, light brown. Stem 2–9 inches high, much branched from the base, cottony; leaves strap-shaped and cottony.
Common in damp places, especially where water has stood in the winter. July—September. Annual.

Jersey Cudweed. (Gnaphalium luteo-album, Linn.)—Flower-heads half sunk in wool, in terminal masses (corymbs). Florets dull-red. [As just described in the genus Gnaphalium.] Flower-bracts shining, membranous, straw-coloured. Stem 3–18 inches high, sometimes solitary, sometimes with a few branches from the base; the leaves strap-shaped, very cottony.
Found chiefly in the Channel Isles. July—August. Annual.

Wood Cudweed. (Gnaphalium sylvaticum, Linn.)—Flower-heads of yellowish florets arranged in small clusters up an erect, long, solitary, leafy stem. [As described in the genus Gnaphalium.] Flower-bracts, inner membranous, outer green with a dark-brown margin. Stem 3–18 inches high, erect, unbranched, downy, with simple narrow, pointed leaves. Whole plant whitish. [*Plate* 65.
Common. Fields, gravelly heaths, etc. July—September. Perennial.

Highland Cudweed. (Gnaphalium norvegicum, Cunn.)—Similar to the Wood Cudweed (Gnaphalium sylvaticum), but with a closer, denser spike, darker flower-bracts, and broader leaves.
Only found on mountains in the Highlands. August—September. Perennial.

Dwarf Cudweed. (Gnaphalium supinum, Linn.)—Resembling dwarf specimens of the Wood Cudweed, but with 1–7 flower-heads clustered in a short terminal, almost

COMMON
HEMP AGRIMONY.
EUPATORIUM
CANNABINUM.
COMMON
FILAGO.
FILAGO
GERMANICA.
WOOD
CUDWEED.
GNAPHALIUM
SYLVATICUM.
COMMON
WORM
WOOD
ARTEMISIA
ABSINTHIUM.

leafless spike, with very cottony stems ½–8 inches high, and leaves growing chiefly from the root (radical).
Only found on mountains in the Highlands. July—September. Perennial.

WORMWOOD. (ARTEMISIA, LINN.)—Flower-heads small, very numerous, in small clusters all up the stems (racemes or panicles). Florets all tubular, yellow or purplish, the outer (ray) without stamens (female) or perfect, those of the centre (disk) without carpels (male) or perfect. Flower-bracts numerous, overlapping, with membranous margins. Calyx-tube, without any hairs or border; petals 5, united into a tube and separating into short teeth; stamens 5, with their anthers united, or 0; carpels 2 or 0. Fruit an achene without any border or hairs (pappus). Herbs or shrubs with alternate, much divided leaves; usually with a bitter taste and an aromatic smell.

Common Wormwood. (Artemisia Absinthium, Linn.)—As just described. Flower-heads round, very numerous, small, shortly-stalked, drooping, growing in loose clusters up every stem and branch; florets all tubular, pale yellow; stem 1–4 feet high, silky, much branched; leaves broad, deeply divided from the midrib, each segment being again divided (bi-pinnatifid), silky on both sides, the underside nearly white. [*Plate* 65.

This species has been used as a tonic, and is a bitter aromatic herb. The liqueur absinthe is obtained from it. It is also used, occasionally, instead of hops in preparing beer.
Common in waste places, by waysides, near the sea. July—September. Perennial.

Mugwort. (Artemisia vulgaris, Linn.)—Very similar to the Wormwood, but with the flower-heads oval, erect, reddish or yellowish-brown, and the leaves greener above, and more divided. Not aromatic.

Also a plant used instead of hops in the making of beer, and also as a flavouring herb:—hence its familiar name.
Common in waste places and hedges. July—September. Perennial.

Field Wormwood or Southernwood. (Artemisia campestris, Linn.)—Another similar species, with the flower-heads oval, numerous, few-flowered, clustered in spike-like branches; the florets yellow; the flower-bracts often purple; the stems prostrate until in flower; the leaves with narrower segments; and the whole plant dark green, silky when young, but becoming hairless. Not aromatic.
Rare. Sandy heaths. August—September. Perennial.

Sea Wormwood. (Artemisia maritima, Linn.)—A similar plant to the Mugwort (Artemisia vulgaris), but with reddish, smaller flower-heads, drooping or erect, and with leaves doubly divided into very narrow, numerous, blunt segments (bi-pinnatifid), with white down on both sides.
Common on salt marshes, &c., near the sea. August—September. Perennial.

GOLDEN-ROD. (SOLIDAGO, LINN.)—Flower-heads small, yellow, in small clusters terminating the stem and branches (racemes or corymbs). Florets small, yellow; the outer (ray) strap-shaped (ligulate), without stamens (female), in one row; the inner (disk) tubular, perfect. Flower-bracts in several rows. Calyx-tube tipped with hairs; petals 5, the outer (ray) united at the base and spreading into a flat, strap-shaped limb (ligulate), the inner (disk) united into a tube and separating into 5 short teeth; stamens 5, with united anthers; carpels 2, united. Fruit an achene tipped with the calyx-hairs (pappus). Perennial erect herbs with strong stems, and simple, scattered, stalkless (sessile) leaves.

Common Golden-rod. (**Solidago Virgaurea, Linn.**)—The only British species (as just described). The flower-heads in small, crowded clusters up the stem, forming a long terminal cluster, with the florets yellow, and the flower-bracts very narrow (linear), acute, and in many rows. The stem 1-3 feet high, erect, angular, roughish; and the leaves simple, lance-shaped, usually entire, those of the stem stalkless (sessile), and those of the root (radical) stalked and toothed.
Common on hills, banks, &c., especially on chalky soil. July—September. Perennial. [*Plate* 66.

Var. cambrica, Huds. Similar to the Common Golden-rod, but having broader leaves, larger flower-heads, and stems only 2–8 inches high.

BUR-MARIGOLD. (**BIDENS, LINN.**)—Flower-heads roundish, nearly solitary. Florets, the outer (ray) strap-shaped (ligulate), without stamens and without carpels (neuter), in 1 row, yellow, generally absent; the inner (disk) tubular, perfect, yellow. Flower-bracts in 2 rows, the outer leafy and turned back, the inner membranous. Calyx-tube tipped with bristles; petals 5, in the outer (ray) florets, united at the base and spreading into a flat, strap-shaped limb (ligulate) or absent, in the inner (disk) florets united into a tube and separating into 5 teeth (tubular); stamens 5, with united anthers, or 0; carpels 2 or 0. Fruit a flattened, angular achene, the angles ending in 2–5 barbed bristles which represent the calyx-hairs. Herbs with opposite leaves.

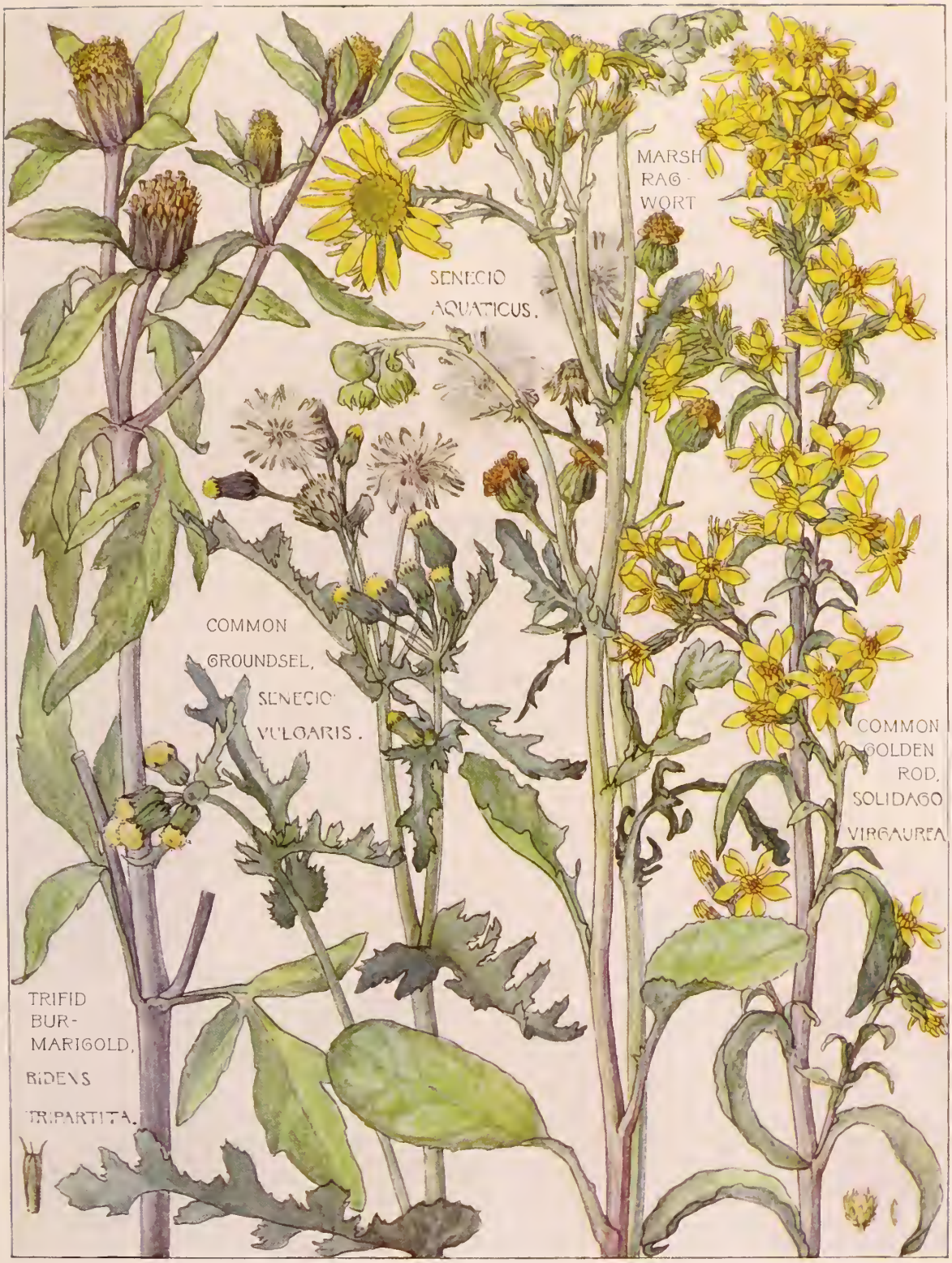
Nodding Bur-Marigold. (**Bidens cernua, Linn.**)—As just described. Flower-heads drooping, terminal, on long stalks, about 3 terminating the stem and branches, without any outer (ray) florets; florets yellow. The outer row of flower-bracts leafy and spreading. Stem 1–2 feet high. Leaves smooth, undivided (simple), stalkless (sessile), strap-shaped, toothed (serrate). Fruit an achene, oblong, with 4 ribs, all or 3 of which terminate in stiff hooked bristles, which take firm hold of the coat of any animals that touch them and so distribute the seeds.
Common in watery places. July—October. Annual.

Var. Bidens radiata, Sond. With strap-shaped (ligulate) outer (ray) florets.
Rare.

Trifid Bur-Marigold. (**Bidens tripartita, Linn.**)—Very like the Nodding Bur-Marigold (Bidens cernua). Differing in having erect flower-heads, with the outer row of flower-bracts leafy and spreading, stalked leaves divided from the base into 3 stalked segments (palmate), the terminal segment being often deeply 3-cleft. Fruit as in the Nodding Bur-Marigold, but having only 2 or rarely 3 bristles. [*Plate* 66.
Common in watery places. July—September. Annual.

GROUNDSEL, RAGWORT. (**SENECIO, LINN.**)—Flower-heads generally in terminal masses (corymbs). The outer (ray) florets strap-shaped, without stamens (female), yellow, orange, or purple, sometimes absent; the inner (disk) tubular, perfect, yellow. Flower-bracts in 2 rows, the inner row being regular and longer, the outer shorter and irregular. Calyx-tube tipped with hairs; petals 5, those of the outer florets united at the base and spreading into a strap-shaped limb (ligulate) or absent, those of the inner florets united into a tube and separating into 5 teeth (tubular); stamens 5, with united anthers, or 0; carpels 2, united; fruit an achene crowned with several rows of soft calyx-hairs (pappus). Herbs or undershrubs with alternate leaves.

Common Groundsel. (**Senecio vulgaris, Linn.**)—As just described. Heads in loose masses, slightly drooping, terminating the stem and branches. Florets, the outer (ray) absent or very short, yellow; those of the centre (disk) tubular, yellow. Flower-bracts, the outer very short,


MARSH RAG-WORT
SENECIO AQUATICUS.
COMMON GROUNDSEL, SENECIO VULGARIS.
COMMON GOLDEN ROD, SOLIDAGO VIRGAUREA
TRIFID BUR-MARIGOLD, BIDENS TRIPARTITA.

tipped with black. Stem 6–18 inches high, weak, juicy, irregularly branched. Leaves deeply lobed from the midrib (pinnatifid), half clasping the stem (semi-amplexicaul), the margins toothed. Very common. Cultivated and waste ground. Flowers all the year. Annual. [*Plate* 66.

Mountain Groundsel. (**Senecio sylvaticus, Linn.**)—Very similar to the last, but with the outer (ray) florets present, few, very shortly strap-shaped (ligulate), curled back and pale yellow; with a taller stem, 1–2 feet high, slightly sticky, and the leaves more cut. The whole plant is slightly sticky, yellowish-green, and with an unpleasant odour.
Common. Dry, gravelly places. July—September. Annual.

Stinking Groundsel. (**Senecio viscosus, Linn.**)—Similar to the last species, but differing in having fewer heads of florets, longer outer flower-bracts, and in being fœtid.
Local, but widely spread. Dry waste places. July—September. Annual.

Hoary Ragwort. (**Senecio erucifolius, Linn.**)—Flower-heads in a dense terminal mass (corymb). The outer (ray) florets numerous, strap-shaped (ligulate), bright yellow. [As described in the genus Senecio.] Stem 18 inches to 4 feet high, growing in tufts, stiff and cottony; leaves regularly lobed from the midrib (pinnatifid), cottony underneath.
Not uncommon near the sea. Waysides, especially on limestone or chalk. July—August. Perennial.

***Inelegant Ragwort.** (**Senecio squalidus, Linn.**)—Not a native. A very similar species to the following, the Common Ragwort (Senecio Jacobæa), but with fewer and broader (ray) florets, and the stem only 1 foot high, and much branched.
Naturalised on old walls and waste ground in Devon, Oxford, Cork, and a few other places in England and Ireland. May—October. Annual or Biennial.

Common Ragwort. (**Senecio Jacobæa, Linn.**)—Flower-heads ¾–1 inch across, in large, terminal, flat masses (corymbs). The outer (ray) florets rather narrow, numerous, strap-shaped (ligulate), rarely absent, all bright yellow. [As described in the genus Senecio.] Stem 18 inches to 4 feet high, stiff, straight, branched. The upper leaves clasping the stem (amplexicaul), and deeply lobed from the midrib (pinnatifid); the root (radical) leaves stalked, also deeply lobed from the midrib, with the segments similarly lobed (bi-pinnatifid), the terminal lobe much larger than the others (lyrate).
Very common. Waste places. June—September. Perennial.

Marsh Ragwort. (**Senecio aquaticus, Huds.**)—Similar to the last. Differing in the flower-heads being fewer, 1–1½ inches across, the root (radical) leaves being oval, undivided, and toothed. [*Plate* 66.
Very common. Wet places. July—August. Perennial.

Great Fen Ragwort. (**Senecio paludosus, Linn.**)—Flower-heads 1½ inches across, few, bright yellow. [As described in the genus Senecio.] Stem 5–6 feet high, hollow, cottony; leaves lance-shaped, the margins toothed like a saw (serrate), cottony beneath.
Very rare. Fen ditches in the eastern counties. May—July. Perennial.

***Broad-leaved Ragwort.** (**Senecio saracenicus, Linn.**)—Not a native. A similar species to the Great Fen Ragwort (Senecio paludosus), differing in its more numerous but smaller flower-heads, ¾ inch across; in its shorter stem; and its more regularly toothed, often broader, smooth leaves.
Naturalised in many counties, in moist meadows and beside streams. July—August. Perennial.

Marsh Fleawort. (**Senecio palustris, DC.**)—Flower-heads about 1 inch across, numerous, in a dense terminal mass (corymb); florets lemon-yellow. [As described in the genus

Senecio.] Flower-bracts in 1 row, yellowish. Stem 1–3 feet high, only branched at the top, very thick, hollow, shaggily woolly, with leaves crowded up to the flowers, the leaves being stalkless (sessile), half clasping the stem (semi-amplexicaul), broadly lance-shaped, remotely toothed, slightly woolly.

Rare. Fen ditches in the eastern counties. June—July. Biennial.

Field Fleawort. (**Senecio campestris, DC.**)—Flower-heads similar to the last species, ¾–1 inch across, 2–6 in a terminal cluster (corymb). Stem 3–12 inches high, unbranched (simple), hoary. Leaves of the stem few, lance-shaped, stalkless (sessile), half clasping the stem (semi-amplexicaul); of the root (radical) in a rosette, 1–2 inches long, generally entire.

Rare. On chalky pastures and waysides. May—June. Perennial.

Seaside Fleawort. (**Senecio spathulæfolius, DC.**)—A similar plant, but with larger and more numerous flower-heads. Taller, and with its root (radical) leaves broader at the tip and narrowing at the base (spathulate).

On sea rocks near Holyhead. June—July. Biennial or Perennial.

FLEA-BANE. (**ERIGERON, LINN.**)—Heads many-flowered, solitary or in masses. The outer (ray) florets numerous, narrowly strap-shaped (ligulate), without stamens (female), in many rows, white or purple; the inner (disk) florets tubular, yellow, generally perfect or without carpels (male), sometimes surrounded by stamenless (female) tubular florets. Flower-bracts in many rows, membranous. Calyx-tube surmounted with hairs; petals 5, united at the base and spreading into a flat, strap-shaped limb (ligulate) in the outer florets, or united into a tube and separating into 5 short teeth (tubular) in the centre florets; stamens 5, with united anthers, or 0; carpels 2, united, or 0. Fruit an achene tipped with the lengthened calyx-hairs (pappus). Herbs with narrow (linear), entire, stalkless (sessile), alternate leaves.

***Canadian Flea-bane.** (**Erigeron canadense, Linn.**)—Not a native. As just described. Flower-heads many, small, in long terminal clusters (panicles). The outer (ray) florets narrowly strap-shaped (ligulate), white or flesh-coloured, and the inner (disk) perfect, pale yellow. Flower-bracts very narrow (linear), unequal, membranous. Stem 1–2 feet high, branched; leaves numerous, narrow, entire, fringed with hairs (ciliate).

Local, introduced from North America. August—September. Annual.

Blue Flea-bane. (**Erigeron acre, Linn.**)—Flower-heads rather longer than broad, solitary, terminating the stem and branches and forming a very loose cluster. The outer (ray) florets narrowly strap-shaped (ligulate), purple; the inner centre (disk) florets perfect, and the outer without stamens (female), yellow. [As just described in the genus Erigeron.] Flower-bracts with slender red points. Stem 1–2 feet high, erect, slender, with many branches, hairy, reddish; the leaves of the stem entire, oblong, numerous, stalkless (sessile), half clasping the stem (semi-amplexicaul); those of the root (radical) stalked, and entire. [*Plate* 67.

Not common. Found on banks, dry pastures, and sand-hills. July—September. Biennial.

Alpine Flea-bane. (**Erigeron alpinum, Linn**).—Flower-heads solitary, terminal, largish. The outer (ray) florets spreading, long, strap-shaped (ligulate), without stamens (female), purple; the centre (disk) florets tubular, yellow, the central ones perfect and the outer without stamens (female). [As described in the genus Erigeron.] Flower-bracts very hairy, narrow (linear), with slender crimson points. Stems 3–8 inches high, hairy, simple, or with 2 or 3 branches near the top. Leaves entire, strap-shaped, stalkless.

Very rare. On Alpine rocks in Perthshire and Forfarshire. July—August. Perennial.

BLUE
FLEA-
BANE.
ERIGERON
ACRE.
PLOUGH-
MAN'S
SPIKENARD.
COMMON
FLEA-BANE.
PULICARIA
DYSENTERICA.
INULA
CONYZA.

ELECAMPANE. (**INULA, LINN.**)—Flower-heads in terminal clusters (corymbs), rarely solitary. The outer (ray) florets strap-shaped (ligulate), generally in 1 row, stamenless (female), yellow; the centre (disk) florets, tubular, perfect, yellow. Bracts in many rows, sometimes leafy. Calyx-tube surmounted with a row of hairs; petals 5, united at the base into a tube and spreading into a flat-shaped limb (ligulate), or united into a tube and separating into 5 short teeth (tubular); stamens 5, with united anthers, or 0; carpels 2, united, or 0. Fruit an achene crowned with the calyx-hairs (pappus). Herbs with alternate leaves.

***Elecampane.** (**Inula Helenium, Linn.**)—As just described. Flower-heads terminal, few, very large, 2 inches across, solitary, or nearly so; florets, bright yellow. Flower-bracts broadly ovate, outer leafy. Stem 1-4 feet high, erect, stout, deeply furrowed; the root (radical) and lower stem leaves very large, stalked, downy, oval, the upper leaves stalkless (sessile), narrowly heart-shaped, clasping the stem (amplexicaul). Plant a fresh pale green.

Rare. In moist meadows and pastures, chiefly in the south of England. July—August. Perennial.

Ploughman's Spikenard. (**Inula Conyza, DC.**)—Flower-heads rather small, very numerous, terminal, the branches uniting with the main stem to form a fairly flat mass of flowers (compound corymb). Florets very short, scarcely longer than the bracts, yellow. [As described in the genus Inula.] Flower bracts strap-shaped, green, or bright red to purple with a streak of green. Stem 2–5 feet high, branched at the top, erect, downy; the leaves oblong, nearly stalkless, except those of the root (radical), which are stalked. [*Plate* 67.

Local. Dry banks, etc., especially in chalky places. July—September. Biennial.

Willow-leaved Inula. (**Inula salicina, Linn.**)—Flower-heads terminal, solitary, large, 3½ inches across; florets bright yellow. [As described in the genus Inula.] Stem 12–18 inches high, very leafy, with narrow toothed leaves.

Only found on the shores of Lough Derg, Galway. August—September. Perennial.

Golden Samphire. (**Inula crithmoides, Linn.**)—Flower-heads few, about 1 inch across, at the extremity of the stem and branches; florets bright yellow. [As described in the genus Inula.] Stem 6 inches to 3 feet high, thickening upwards, with towards the top strap-shaped stem-bracts passing insensibly into the flower-bracts; the leaves dense at the top of the stem and bare at the base by the time the flower blooms, strap-shaped, entire, fleshy.

Rare. Salt marshes, rocks and banks by the seaside in the south and west. July—September. Perennial.

FLEA-BANE. (**PULICARIA, GÆRTN.**)—A similar genus to the Inula, differing in having its flower-bracts in few rows instead of many, and in having a row of membranous scales added to the row of hairs on the calyx-tube.

Common Flea-bane. (**Pulicaria dysenterica, Gærtn.**)—Flower-heads few, flat, large, in terminal clusters. The outer (ray) florets numerous, narrowly strap-shaped (ligulate), in several rows, yellow. [As described above.] Flower-bracts very narrow (linear), the tips membranous. Stem 1–2 feet high, very woolly, branched. Leaves oblong, entire, wavy, the upper clasping the stem (amplexicaul), soft green and very woolly. [*Plate* 67.

Very common in the south in moist places. July—September. Perennial.

Small Flea-bane. (**Pulicaria vulgaris, Gærtn.**)—A very similar species to the Common Flea-bane (Pulicaria dysenterica), but smaller, and less woolly, with very short, inconspicuous outer (ray) florets, and leaves not clasping the stem.

Uncommon. Sandy places in the south which have been under water during the winter. August—September. Annual.

DAISY. (BELLIS, LINN.)—Flower-heads solitary on a leafless stalk springing from the root (a scape). The outer (ray) florets strap-shaped (ligulate), without stamens (female), white, red, or purple; the centre (disk) florets tubular, with both stamens and carpels, male and female (perfect), yellow. Flower-bracts in 1 or 2 rows, nearly equal. Small herbs with the leaves in a rosette, all springing from the root (radical).

Common Daisy. (Bellis perennis, Linn.)—The only British species (as just described). The outer florets white, tipped with red, the inner yellow; the flower-bracts dark green and in one row; the stem 2–8 inches high, leafless; the leaves blunt, oblong, narrowing at the base (spathulate); and the root creeping. [*Plate* 64.

Found everywhere. Flowers all the year round. Perennial.

STAR-WORT. (ASTER, LINN.)—Flower-heads many-flowered, in terminal clusters. The outer (ray) florets in one row, strap-shaped (ligulate), without stamens (female), or without stamens and carpels (neuter), white, purple, or blue, rarely absent; the inner (disk) florets tubular, perfect, yellow. Flower-bracts in many rows, herbaceous. Calyx-tube tipped with hairs; petals 5, united at the base and spreading into a flat limb (ligulate) in the outer florets, united into a tube and separating into 5 short teeth (tubular) in the centre florets; stamens 5, with the anthers united, or 0. Fruit an achene tipped with the lengthened calyx-hairs (pappus). Herbs with alternate leaves.

Seaside Aster, Sea Star-wort, Michaelmas Daisy. (Aster Tripolium, Linn.)—As just described. Heads large, in a loose, terminal mass (corymb). The outer (ray) florets in 1 row, strap-shaped (ligulate), lilac or white; the inner (disk) tubular, perfect, yellow. Flower-bracts few, long, pointed, membranous. Stem 1–3 feet high, stout, succulent, much branched; and the leaves fleshy, oblong, smooth, slightly toothed. Sweet-scented. [*Plate* 68.

Found in muddy salt marshes. August—September. Perennial.

***Aster salignus, Willd.**—An escape from gardens, without the outer strap-shaped florets. Found in Cambridgeshire and near Perth.

Goldilocks. (Aster Linosyris, Bernh.)—Flower-heads in a dense terminal mass (corymb). Florets all tubular and perfect, yellow. [As just described in the genus Aster.] Flower-bracts narrow and pointed. Stems 12–18 inches high, wiry, generally unbranched (simple), very leafy. Leaves very narrow, smooth, entire.

Very rare. Limestone cliffs. August—September. Perennial.

YARROW. (ACHILLEA, LINN.)—Flower-heads rather small, in terminal clusters (corymbs). The outer (ray) florets few, short, broad, strap-shaped (ligulate), without stamens (female), white, yellow, or pink; the inner (disk) florets tubular and perfect, white or yellow. Flower-bracts in several rows, with more or less membranous margins. Calyx-tube with neither hairs nor border; petals 5, united into a short tube and spreading into a flat, strap-shaped limb (ligulate), or united into a tube and separating into 5 short teeth (tubular); stamens 5, with united anthers, or 0; carpels 2. Fruit an achene without any crown or hairs (pappus). Herbs with alternate, stalkless (sessile) leaves, which are toothed (serrate) or much divided.

Common Yarrow, Milfoil. (Achillea Millefolium, Linn.)—As just described. Flower-heads small, about $\frac{1}{4}$ inch across, in dense terminal clusters (corymbs). The outer florets white or pink, the inner white or pinkish, with yellow anthers and styles. Stems 3–18 inches high, leafy, slightly woolly. Leaves strap-shaped, all twice or thrice divided to the midrib (bi- or tri-pinnatifid), into narrow segments dull green. [*Plate* 68.

Very common. Waste grounds, waysides, pastures. May—September. Perennial.

COMMON
SNEEZEWORT,
ACHILLEA
PTARMICA.
COMMON
TANSY,
TANACETUM
VULGARE.
SEA-SIDE ASTER,
SEA STAR-WORT.
MICHAELMAS
DAISY,
ASTER
TRIPOLIUM.
COMMON
YARROW,
MILFOIL,
ACHILLEA
MILLEFOLIUM

Common Sneezewort. (**Achillea Ptarmica, Linn.**)—A very similar species, with larger and fewer flower-heads, and undivided, narrow, toothed leaves. [*Plate* 68.
Common. Moist meadows, moors. July—August. Perennial.

COTTON-WEED. (**DIOTIS, DESF.**)—A genus consisting of the one species—

Seaside Cotton-weed. (**Diotis candidissima, Desf.**)—Flower-heads roundish, many-flowered, in dense terminal clusters (corymbs). Florets all tubular, perfect, yellow. Flower-bracts numerous, egg-shaped (ovate), very woolly. Calyx-tube without hairs or any crown; petals 5, united into a tube, which has 2 spurs at its base which remain with the fruit, and separating at the top into 5 short teeth; stamens 5, with united anthers; carpels 2, united. Fruit an achene almost enclosed in the 2 spurs of the corolla-tube. A herb, densely covered with thick, white, cottony wool, about 1 foot high; with alternate, blunt, oblong leaves half clasping the stem (semi-amplexicaul); and a long, woody root creeping under ground and giving off many stout ascending stems.
Very rare. Sandy sea-shores. August—September. Perennial.

TANSY. (**TANACETUM, LINN.**)—Flower-heads nearly round, in terminal clusters (corymbs). Florets all tubular, yellow, or with the outer ones, which are always stamenless (female), strap-shaped (ligulate), but not longer than the others. Flower-bracts with membranous edges. Calyx tube not surmounted with hairs or border; petals 5, united into a tube and separating into 5 short teeth (tubular), or united into a tube at the base and spreading into a very short, strap-shaped limb (ligulate); stamens 5, with united anthers, or 0; carpels 2 or 0. Fruit an achene, ribbed, but without border or hairs (pappus). Herbs with alternate, much divided leaves.

Common Tansy. (**Tanacetum vulgare, Linn.**)—The only British species (as just described), the stems being 2–3 feet high, and the leaves divided to the midrib into numerous pairs of leaflets (pinnate), which are deeply lobed towards the midrib (pinnatifid). The whole plant has a strong scent and is very bitter. It was largely used in medicine. [*Plate* 68.
Not common. Waysides, waste places. August—September. Perennial.

CHAMOMILE. (**ANTHEMIS, MICH.**)—Flower-heads usually large, solitary, terminating the stem and branches. The outer (ray) florets strap-shaped (ligulate), without stamens (female) and sometimes without either stamens or carpels (neuter), white, yellow, or rose-colour; the inner (disk) florets tubular, perfect, yellow. Flower-bracts in rows with membranous margins. Calyx-tube crowned with a raised border; petals 5, united into a small tube and spreading into a flat, strap-shaped limb (ligulate), or united into a tube and separating into 5 short teeth (tubular); stamens 5, with the anthers united, or 0; carpels 2, united, or 0. Fruit an achene crowned with the calyx-border. Herbs strongly scented, with alternate, finely-divided leaves.

***Ox-eye Chamomile.** (**Anthemis tinctoria, Linn.**)—Not a native. As just described. Flower-heads large, 1–1½ inches across, solitary, terminating the stem and branches. Florets bright yellow. Achenes ribbed and crowned with the conspicuous calyx-border. Stems 1–2 feet high, much branched. Leaves deeply lobed to the midrib and again lobed into narrow, strap-shaped segments (bi-pinnatifid), downy.
Introduced into some of our eastern counties. July—August. Biennial.

Stinking Chamomile. (**Anthemis Cotula, Linn.**)—Flower-heads about 1 inch across, solitary, terminating the stem and branches, which are so much branched that the flower-heads seem clustered. The outer (ray) florets without either stamens or carpels (neuter), white. [As

described in the genus Anthemis.] Achenes ribbed and crowned with the small calyx border. Stems 9 inches to 2 feet high, much branched at the top. Leaves deeply lobed to the midrib, the lobes being again divided into narrow (linear) segments (bi-imparipinnate), and dotted with glands which give out a very disagreeable smell when rubbed.
Common in the south of England. Waste places. June—September. Annual.

Corn Chamomile. (Anthemis arvensis, Linn.)—A similar species to the Stinking Chamomile (Anthemis Cotula), but with fewer flower-heads, the outer (ray) florets having carpels; the ring-like calyx-border crowning the achenes being divided into segments; the stems less branched and covered with hairs, as are the leaves, on which there are no glands.
Not common. Borders of cultivated fields. June—August. Annual.

Common Chamomile. (Anthemis nobilis, Linn.)—Another similar species to the Stinking Chamomile, also with fewer flower-heads, the achenes without any distinct crown, the stems prostrate and much branched, and the leaves two or three times divided into shorter and pointed segments (bi or tri-pinnatifid), slightly hairy. The whole plant has a pleasant aromatic smell and taste, and is valuable in medicine. [*Plate* 69.
Common in the south of England. Sandy pastures. July—September. Perennial.

OX-EYE. (CHRYSANTHEMUM, LINN.)—Flower-heads generally large, solitary, or in clusters, (corymbs). The outer (ray) florets strap-shaped (ligulate), without stamens (female), white, yellow, or rose; the inner (disk) florets tubular, with stamens and carpels (perfect), yellow. Flower-bracts with membranous margins. Calyx-tube without any hairs but sometimes crowned with a raised border; petals 5, united into a tube at the base and spreading into a strap-shaped limb (ligulate), or united into a tube and separating into 5 short teeth (tubular); stamens 5, with the anthers united, or 0; carpels 2, united. Fruit an angular or roundish achene crowned with the raised calyx-border when it is present, without hairs (pappus). Herbs with alternate, and entire or finely divided leaves.

Corn Marigold, Yellow Ox-eye, Yellow-bottle. (Chrysanthemum segetum, Linn.)—As just described. Flower-heads large, 1½–2 inches across, solitary, terminating the stem and branches; florets all golden yellow; flower-bracts green with broad, dry, light-brown margins. Fruit an achene without hairs or border. Stem 12-18 inches high, branched; leaves oblong, smooth, bluish-green (glaucous); the upper leaves clasping the stem, undivided, the edges slightly toothed; the lower leaves stalked and deeply lobed (pinnatifid). [*Plate* 69.
Found in cultivated fields, particularly cornfields. June—October. Annual.

Moon Daisy, Ox-eyed Daisy, Horse Gowan. (Chrysanthemum Leucanthemum, Linn.)—Heads large, 1½–2 inches across, solitary, terminating the stem and branches. The outer (ray) florets white; and the inner (disk) yellow. [As just described in the genus Chrysanthemum.] Flower-bracts green with narrow, dark, reddish-brown margins. Fruit a roundish, ribbed achene, those of the centre crowned with the calyx-border. Stem 12–24 inches high, slightly branched; leaves deep green, nearly smooth, the upper oblong, not stalked (sessile), half clasping the stem (semi-amplexicaul), serrate; the root (radical) leaves stalked, oblong, narrowing at the base (spathulate). [*Plate* 69.
Very common on poor soil, pastures, meadows, roadsides, &c. June—August. Perennial.

***Common Feverfew. (Chrysanthemum Parthenium, Pers.)**—Flower-heads small, ½–¾ inch across, in flat, terminal clusters (corymbs); the outer (ray) florets short, broad, and white; the centre (disks) florets yellow. [As just described in the genus Chrysanthemum.] Fruit an achene crowned with the calyx-border. Stem 12–24 inches high, the upper half much

COMMON CHAMO- MILE.
ANTHEMIS NOBILIS.
CORN FEVERFEW, SCENTLESS MAYWEED.
MATRICARIA INODORA.
CHRYSANTHEMUM SEGETUM.
CORN MARIGOLD.
COMMON FEVER- FEW,
CHRYSANTHEMUM PARTHENIUM.
OX-EYE DAISY,
CHRYSANTHEMUM LEUCANTHEMUM.

branched; the leaves twice divided to the midrib (bi-pinnatifid), stalked, slightly downy. Having a powerful aromatic odour, disliked by bees, and a bitter taste; formerly used as a medicine. [*Plate* 69.

Common in hedges and waste places, though possibly introduced. July—September. Perennial.

WILD CHAMOMILE, FEVERFEW. (MATRICARIA, LINN.)—Flower-heads solitary, terminating the stem and branches. The outer (ray) florets strap-shaped (ligulate), without stamens (female), and white, rarely absent; the centre (disk) florets tubular, perfect, and yellow. Flower-bracts in few rows. Calyx-tube without hairs, sometimes with a membranous border; petals 5, united into a small tube and spreading into a strap-shaped limb (ligulate), or united in a tube and separating into 5 short teeth (tubular); stamens 5, with the anthers united, or 0; carpels 2. Fruit an achene crowned with the calyx-border when it is present. Herbs with alternate, much divided leaves.

Corn Feverfew, Scentless Mayweed. (Matricaria inodora, Linn.)—As just described. Flower-heads $\frac{3}{4}$–2 inches across, solitary, terminating the stem and branches. The outer (ray) florets white and the inner (disk) florets yellow. Flower-bracts narrow, with a narrow, red-brown margin. Achenes crowned with the raised calyx-border. Stem 6 inches to 2 feet high, erect, the upper part much branched, and the stalkless (sessile) leaves repeatedly cut into hair-like leaflets (tri-pinnate). [*Plate* 69.

Very common. Waste places and cultivated ground. June—October. Annual or Biennial.

Sea Feverfew. (Matricaria maritima, Linn.)—A very similar species, differing in having a more spreading, shorter stem and more fleshy, shining leaves with shorter leaflets.

Rare. Sea-coasts in the north. June—October. Perennial.

Wild Chamomile. (Matricaria Chamomilla, Linn.)—Another very similar species to the Scentless Mayweed (Matricaria inodora), but with smaller flower-heads, $\frac{1}{2}$–$\frac{3}{4}$ inch across, more branched, so that the flower-heads appear to be more in clusters (corymbs); the flower-bracts with yellowish margins, and the whole plant more slender, of a yellowish-green, and with the aromatic scent of Chamomile (Anthemis nobilis).

Common. Cornfields. June—August. Annual.

COLT'S-FOOT. (TUSSILAGO, LINN.)—Flower-heads large, many-flowered, solitary, on stalks from the root (scapes), covered with scale-like bracts. The outer (ray) florets narrowly strap-shaped (ligulate), in several rows, without stamens (female), yellow or purple; the centre (disk) florets tubular, few, yellow. Flower-bracts unequal, in two rows. Calyx-tube surmounted with hairs; petals 5, united into a tube at the base and spreading into a flat, strap-like limb (ligulate), or united into a tube and separating into 5 short teeth; stamens 5, with the anthers united, or 0; carpels 2 or 0. Fruit an achene crowned with the elongated calyx-hairs (pappus). Perennial herbs with heart-shaped (cordate) leaves, all rising from the creeping root (radical).

Common Colt's-foot. (Tussilago Farfara, Linn.)—The only British species (as just described). The flower-heads 1 inch across, bright yellow, on stalks from 3–8 inches high. [*Plate* 70.

Very common. Waste places, fields, waysides. February—March. Perennial.

BUTTER-BUR. (PETASITES, LINN.)—Flower-heads numerous, small, in a thick, short, terminal spike on stalks from the root (scapes), covered with scaly bracts, male and female usually on different plants. The outer (ray) florets tubular or very shortly strap-shaped (ligulate), white or mauvish-pink; the centre (disk) florets tubular, numerous. Flower-bracts unequal, in 2 or 3 rows. Calyx-tube surmounted with hairs; petals 5, united at the base into a tube and spreading into a short, broad, strap-shaped limb (ligulate), or united into a tube and separating into 5 short

teeth (tubular); stamens 5, with united anthers, or 0; carpels 2 or 0. Fruit an achene crowned with the calyx-hairs (pappus). Perennial herbs with the large heart-shaped (cordate) leaves all coming from the root (radical) and appearing after the flowers.

Common Butter-bur. (Petasites officinalis, Mœnch.)—The only native. As just described. The florets a pale mauvish-pink, the male and female florets being on different plants, the flower stalk being 4–12 inches high, thick and fleshy, with pale green sheath-like bracts sometimes ending in a small leaf, and the root creeping and very difficult to eradicate. [*Plate* 70.
Common. Marshy meadows and by the sides of streams. February—March. Perennial.

***Winter Heliotrope, Sweet-scented Colt's-foot. (Petatites fragrans, Presl.)**—Not a native. Common in some places in the south. With the flower-stems bearing a few terminal flower-heads of dingy mauve, sweet-scented florets with an outer row of strap-shaped (ligulate) florets.
Naturalised in shrubberies and under hedges in the south of England. December—February. Perennial.

***White-flowered Butter-bur. (Petasites albus, Gærtn.)**—An escape from cultivation, naturalised in some places. The florets are white, and the leaves small and deeply scalloped.
Not a native. April—May. Perennial.

CARLINE THISTLE. (CARLINA, LINN.)—Flower-heads conspicuous, showy from the coloured inner bracts. Florets all tubular, perfect, equal. Flower-bracts numerous, the outer leafy, spreading, with spinous teeth; the inner, entire, long, membranous, coloured, spreading in a ray in fine weather, but closing up in rain. Calyx-tube surmounted with feathery hairs; petals 5, all united into a tube and separating into 5 short teeth (tubular); stamens 5, with the anthers united; carpels 2. Fruit an achene crowned with the silky, feathery calyx-hairs (plumose pappus). Spinous herbs with leaves deeply lobed from the midrib (pinnatifid).

Common Carline Thistle. (Carlina vulgaris, Linn.)—The only British species (as just described). The flower-heads 1–1½ inches across, usually 3 or 4 in a loose terminal cluster; at once distinguished by its long inner flower-bracts, which resemble petals and are glossy and straw-coloured, and spread open in fine weather; they are membranous, of the texture of the Everlasting, and often remain on the plant till the next spring. The whole plant is from 4 inches to 2 feet high.
Common on chalky soil. June—October. Biennial. [*Plate* 71.

BURDOCK. (ARCTIUM, LINN.)—Flower-heads roundish, in loose, terminal masses (corymbs). Florets all tubular perfect, equal. Flower-bracts numerous, in many rows, slender, long, spreading, each ending in a hooked spine. Calyx-tube surmounted with hairs; petals, 5, all united into a tube and separating into 5 short teeth; stamens 5, with the anthers united; carpels 2. Fruit an achene, flattened, crowned with the short, stiff calyx-hairs (pappus). Large stout plants with the root (radical) leaves very large, stalked, and heart-shaped (cordate), but none spinous, nor continued down the stem (winged or decurrent), nor deeply divided, as in the various Thistles, which in all other respects, except the hooked flower-bracts, the Burdocks resemble.

Great Burdock. (Arctium majus, Bernh.)—As just described. The flower-heads, stalked, 1 inch or more across, nearly round, in loose terminal masses at the extremities of the stem and branches; the florets purple with dark purple stamens and white styles; the flower-bracts about the same length as the florets, cobwebby; the stem 3–4 feet high, much branched; and the root (radical) leaves very large, wavy, on long, solid stalks.
Not uncommon. Waste places, waysides. July—August. Biennial.

COMMON
COLT'S FOOT.
TUSSILAGO
FARFARA.
COMMON
BUTTER-
BURR.
PETASITES
OFFICINALIS.

Wood Burdock. (**Arctium nemorosum, Lej.**)—A species similar to but smaller than the last, with smaller, nearly stalkless (sub-sessile) flower-heads, very cobwebby; flower-bracts equal in length to the florets; and leaves scalloped (crenate), with hollow stalks.
Local. Waste places. July—August. Biennial.

Lesser Burdock. (**Arctium minus, Bernh.**)—Another species similar to and smaller than the Great Burdock (Arctium majus), the flower-heads more in spikes, not more than ¾ inch across, shortly stalked, round; the flower-bracts shorter than the florets, slightly cobwebby; and the root (radical) leaves coarsely toothed (dentate) and with hollow stalks.
Very common. Waste places. July—August. Biennial.

Intermediate Burdock. (**Arctium intermedium, Lange.**)—Another similar species, 2–4 feet high, with flower-heads ¾–1 inch across, very cobwebby, slightly stalked; florets longer than the flower-bracts; the stems 2–4 feet high, and the root (radical) leaves scalloped, with slightly hollowed stalks. [*Plate* 71.
Not uncommon, very local. Waste places, waysides. July—August. Biennial.

THISTLE. (**CARDUUS, LINN.**)—Flower-heads usually large, roundish or oval. Florets all tubular, equal, generally perfect, purple, crimson, or white. Flower-bracts numerous, entire, spinous at the tip. Calyx-tube surmounted with a border and simple hairs; petals 5, all united into a tube and separating into 5 short teeth (tubular); stamens 5, with united anthers, rarely 0; carpels 2, rarely 0. Fruit an achene crowned with the calyx-border and the simple calyx-hairs (pappus), which are shining and white. Herbs with leaves with spinous margins, continued down the stem (winged or decurrent).

Slender-flowered Thistle. (**Carduus pycnocephalus, Linn.**)—As just described. The flower-heads small and narrow, ¾ inch long and ¼ inch broad, in a dense cluster at the top of the stem; the florets all pale purplish-pink; the flower-bracts lance-shaped, very long, shortly spinous-pointed, the inner ones as long as the florets; the stem erect, 6 inches to 4 feet high, branched, winged throughout, that is with each leaf continued down the stem until it joins the leaf below, the leaves having spinous margins and being cottony beneath.
Uncommon. Waste, sandy places, especially near the sea. June—August. Biennial or Annual.

Musk Thistle. (**Carduus nutans, Linn.**)—Flower-heads large, 1–1½ inches across, solitary, drooping; florets crimson with purple anthers; flower-bracts lance-shaped, spinous, pointed, the outer ones turned back (reflexed). [As just described in the genus Carduus.] Stem 1–2 feet high, furrowed, with the leaves continued down the stem except near the flower-heads (interruptedly winged); the leaves being deeply lobed, spinous, wavy, hairy, somewhat shining. The flowers have a strong scent of musk.
Common in waste places, especially on chalk. May—October. Biennial.

Welted Thistle. (**Carduus crispus, Linn.**)—Flower-heads small, roundish, stalkless (sessile), clustered together at the extremities of the stem and branches, rarely solitary; florets purple, sometimes white; flower-bracts strap-shaped, spinous-pointed, cobwebby. [As just described in the genus Carduus.] Stem 1–4 feet high, with all the leaves continued down the stem (continuously winged), the leaves being narrow, deeply lobed, spinous, hairy. [*Plate* 71.

There are several varieties of this thistle, distinguished by their degree of hairiness and the round or oval shape of the heads.
Common in waste places. June—September. Biennial.

PLUME THISTLE. (**CNICUS, LINN.**)—This genus is like the genus Carduus, but differs from it in the fruit being crowned with feather-like hairs (plumose pappus).

Spear Plume-Thistle. (**Cnicus lanceolatus, Willd.**)—Flower-heads large, 1–1½ inches across, egg-shaped, solitary or 2–3 together; florets light crimson-purple; flower-bracts lance shaped, spinous-pointed, woolly, spreading; achene oblong, compressed, crowned with the feathery calyx-hairs (pappus). [As described in the genus Cnicus.] Stem 1–5 feet high, woolly, with the leaves partially continued down the stem (interruptedly winged); the leaves being deeply lobed, with the lobes again divided and ending in a strong spine; deep dull green with minute bristle-like spines, white and downy underneath. [*Plate* 71.

Common everywhere. July—October. Biennial or Annual.

Woolly-headed Plume Thistle. (**Cnicus eriophorus, Roth.**)—Flower-heads very large, 2–3 inches across, round, solitary or rarely two together; florets light reddish-purple, with dark purple anthers and white styles; flower-bracts lance-shaped, with long turned-back spines, reddish or green, covered with thick white wool; achenes oblong, flattened, spiny, crowned with the feathery calyx-hairs. [As just described in the genus Cnicus.] Stem 3–5 feet high, woolly, not winged; the upper leaves half clasping the stem, deeply lobed (pinnatifid), and spinous, each lobe ending in a stout spine; the lower leaves very large, often 2 feet long, deep dull green with minute bristle-like spines, white and downy underneath.

Local. Waste places on chalk and limestone. July—October. Biennial.

Marsh Plume-Thistle. (**Cnicus palustris, Willd.**)—Flower-heads small, egg-shaped, nearly stalkless (sub-sessile), in a terminal leafy cluster; florets generally without carpels (male) on one and without stamens (female) on another plant (dicœcious), purple-crimson or white; flower-bracts lance-shaped, not spinous, slightly cobwebby; achenes flattened, with rather short feathery hairs. [As described in the genus Cnicus.] Stem 3–10 feet high, the tallest British thistle, only branched towards the summit, stout, hollow, with the leaves continued down the stem (continuously winged), the leaves being lance-shaped, deeply lobed, the margins with bristly spines, the upper surface hairy, not spiny, deep dull green, downy underneath. [*Plate* 71.

Common on damp land. July—September. Biennial or Annual.

Tuberous Plume-Thistle. (**Cnicus tuberosus, Roth.**)—Flower-heads large, egg-shaped, usually solitary; florets dark crimson, generally without carpels (male) on one and without stamens (female) on another plant; flower-bracts lance-shaped, the outer olive-coloured at the tip, and the inner dark purple, not spinous. Achenes oval, crowned with the feathery calyx-hairs (pappus). [As described in the genus Cnicus.] Stem 2 feet high, not branched, simple, erect, round, slender, leafless above, hairy, not winged; the leaves deeply lobed and fringed with small bristles, bright green. Root spindle-shaped with tuberous fibres.

Very rare, only found in Wiltshire. July—September. Perennial.

Meadow Plume-Thistle. (**Cnicus pratensis, Willd.**)—Flower-heads generally solitary on long stalks, rarely 2–3 together; florets dark purplish-crimson, perfect or otherwise; flower-bracts not spinous, purple at the tip, cottony; achenes oval, crowned with the feathery calyx-hairs (pappus). [As described in the genus Cnicus.] Stem 1–2 feet high, not winged, cottony, not branched (simple), erect, giving off runners; the leaves mostly from the root (radical), soft, wavy, generally undivided, not winged, fringed with minute spines, light green, whitish and cobwebby underneath. Not common. Wet meadows. June—August. Perennial.

Melancholy Plume-Thistle. (**Cnicus heterophyllus, Willd.**)—Flower-heads large, ¾–1 inch across, egg-shaped, solitary or rarely 2–3 clustered at the extremity of the main stem; florets crimson-purple, perfect or otherwise; flower-bracts lance-shaped, downy, not spinous, green, the outer tipped with purplish-olive, the inner with dull purple; achenes oval, crowned with the feathery calyx-hairs (pappus). [As described in the genus Cnicus.] Stem 2–4 feet high, erect, cottony,

WELTED THISTLE, CARDUUS CRISPUS var. polyanthemos.
INTER-MEDIATE BURDOCK,
ARCTIUM INTERMEDIUM.
COMMON CARLINE THISTLE.
CARLINA VULGARIS.
SPEAR PLUME-THISTLE,
CNICUS LANCEOLATUS.
MARSH PLUME-THISTLE, CNICUS PALUSTRIS.

furrowed, generally simple, but sometimes slightly branched above, with runners, nearly leafless above the middle, not winged; the leaves large, lance-shaped, undivided, clasping the stem (amplexicaul), toothed like a saw (serrate), edged with minute bristles, smooth, deep dull green, whitish and downy underneath. This species differs from other thistles in having no spines.
Rather rare. Moist pastures. July—August. Perennial.

Ground or Dwarf Plume-Thistle. (**Cnicus acaulis, Willd.**)—Flower-heads ¾ inch across, egg-shaped, nearly stalkless (sub-sessile), solitary; florets dark crimson, perfect or otherwise; flower-bracts broadly lance-shaped, not spinous; achenes smooth, flattened, crowned with the long, silky, feathery calyx-hairs. [As described in the genus Cnicus.] Stemless or nearly so; the leaves being smooth and all from the root (radical), deeply lobed towards the midrib (pinnatifid), with very spiny lobes, and spreading flat on the ground in a rosette.

Easily distinguished from the other thistles by its lack of stem. Very injurious in pastures, as no plants can live underneath its leaves.
Common in the south-east of England, especially on gravel or chalk. July—September. Perennial.

Creeping Plume-Thistle. (**Cnicus arvensis, Hoffm.**)—Flower-heads small, numerous, stalked, in flat clusters (corymbs); florets light, dingy purple or white, musk-scented, without stamens (female) on one and without carpels (male) on another plant (dicœcious); flower-bracts broad, spinous-pointed, slightly cobwebby; achenes flattened, smooth, crowned with the long, silky, feathery calyx-hairs (pappus). [As described in the genus Cnicus.] Stem 2–4 feet high, erect, angular, not winged; the leaves being stalkless (sessile), deeply lobed (pinnatifid), wavy, very spinous, bright green, cottony underneath. Root creeping.
Very common. Fields. July—September. Perennial.

COTTON THISTLE. (**ONOPORDON, LINN.**)—This genus is similar to the ordinary Thistle (Carduus); it differs in having a 4-angled fruit.

Scottish Thistle. (**Onopordum Acanthium, Linn.**)—The only British species. Flower-heads large, cobwebby, round; florets perfect, pale purple; flower-bracts numerous, green, cobwebby, spreading, ending in a strong yellow spine; achenes 4-angled, wrinkled, crowned with the rough calyx-hairs (pappus), which fall off early. [As described in the genus Carduus.] Stem 2–5 feet high, stout, spinous, with all the leaves continued down to the stem (decurrent or continuously winged); the leaves very spiny, wavy, deeply lobed (pinnatifid), and woolly on both sides, the young leaves being white.

This Thistle is cultivated as the national emblem of Scotland, the badge of the Stuarts; it is one of the thorniest and stiffest of our thistles.
Not common. Roadsides and waste places on chalky or sandy soils. July—October. Biennial.

***MILK THISTLE.** (**MARIANA, HILL.**)—This genus is distinguished from the other thistles by its milk-white veins, and by the stamens having united filaments as well as anthers, instead of being united by the anthers only.

***Our Lady's Thistle.** (**Mariana lactea, Hill.**)—This, the only species found in England, is probably not a native. The flower-heads are large, 1–2 inches across, round, solitary, terminating the stem and branches; florets perfect, rose-coloured, with the filaments as well as the anthers of the stamens united; flower-bracts large, green, the exterior ones with spinous margins ending in a yellow spine 1 inch long; achenes ¼ inch or more long, oval, flattened, black, and crowned

with the long white calyx-hairs (pappus). Stem 1–4 feet high, not winged, the leaves clasping the stem (amplexicaul), spinous, glossy, deep green variegated with white, and having milk-white veins. Not uncommon. Waste places. June—August. Biennial.

SAUSSUREA. (**SAUSSUREA, DC.**)—Flower-heads oval, in terminal clusters (corymbs). Florets all tubular and perfect, purple, the anthers lengthening into a tail. Flower-bracts entire, broadly egg-shaped (ovate). Calyx-tube surmounted with a border and 2 rows of minutely toothed or feathery hairs; petals 5, all united into a tube and separating into 5 short teeth (tubular); stamens 5, with the united anthers lengthened into a tail; carpels 2, united; fruit an achene crowned with the calyx-border and the minutely toothed or feathery calyx-hairs (pappus). Small herbs, not spiny, the leaves often being woolly underneath.

Alpine Saussurea. (**Saussurea alpina, DC.**)—The only British species (as just described). The flower-heads woolly and very shortly stalked, 4–12 clustered in a dense, terminal mass (corymb); the florets pale purple with the scent of heliotrope; the flower-bracts blunt, the outer purple and the inner greenish, covered with long, dense hairs. The stem 3–18 inches high, erect, stout, furrowed, woolly, not branched (simple), very leafy; the leaves lance-shaped, more or less sharply toothed (dentate), dull green, grey and woolly beneath. Root creeping.

Rare. On mountains in Scotland, Wales, and the Lake District. August—September. Perennial.

SAW-WORT. (**SERRATULA, LINN.**)—Flower-heads egg-shaped (ovate) or nearly round. Florets all tubular, perfect or without stamens (female) on one plant and without carpels (male) on another (dicœcious), crimson, purple, or white. Flower-bracts entire, not spiny. Calyx-tube surmounted with a slight border and several rows of unequal, simple hairs; petals 5, all united into a tube and separating into 5 short teeth (tubular); stamens 5, with the anthers united, or 0; carpels 2, united, or 0; fruit an achene, flattened, crowned with the calyx-border and hairs. Herbs with leaves with toothed (serrate) margins.

Common Saw-wort. (**Serratula tinctoria, Linn.**)—The only British species (as just described). The flower-heads few, smallish, stalked, in a loose terminal mass; the florets purple, on one plant with carpels, and white sterile anthers (female), on another, with dark blue fertile anthers, and no carpels (male); the flower-bracts egg-shaped and smooth, the inner tinged with purple; the stem 1–3 feet high, wiry, angular, and slender; the upper leaves deeply lobed towards the midrib (pinnatifid) and strongly toothed, the lower and root (radical) leaves entire with bristly margins, dark green. [*Plate* 72.

Fairly common. On hill-sides, bushy places, etc. August—September. Perennial.

KNAPWEED. (**CENTAUREA, LINN.**)—Flower-heads oval, solitary, on long stalks forming very loose clusters. Florets all tubular, the outer (ray) generally larger, without stamens and without carpels (neuter), unsymmetrical, elongated, and trumpet-shaped; of the centre (disk) with stamens and carpels (perfect); purple, rose, crimson, blue, white, or yellow. Flower-bracts membranous, sometimes spiny or fringed. Calyx-tube with a border, and with or without several rows of hairs; petals 5, all united into a tube and separating into 5 teeth (tubular); stamens 5, with the anthers united, or 0; carpels 2, united, or 0; fruit an achene crowned with the calyx-border and with the calyx-hairs when present (pappus). Herbs with the upper leaves generally strap- or lance-shaped, the lower generally deeply lobed, and the flower-stems tough and wiry and thickened beneath the flower-heads.

HARD HEAD.
BLACK
KNAPWEED.
CENTAUREA
NIGRA.
CORN FLOWER
BLUE-BOTTLE.
CENTAUREA
CYANUS.
COMMON
SAW WORT.
SERRATULA
TINCTORIA.

***Brown-rayed Knapweed. (Centaurea Jacea, Linn.)**—Not a native. As just described. The florets purplish-crimson, the outer (ray) large; the flower-bracts fawn-coloured with whitish edges, the inner entire, the outer jagged; the achenes without hairs; and the whole plant dull green and rather tough.

Very rare. Introduced into meadows and roadsides in Middlesex and Sussex. August—September. Perennial.

Black Knapweed, Hard Head, Mat Fellon. (Centaurea nigra, Linn.)—Flower-heads round (globose) solitary, terminating the stem and branches; the florets purple-crimson, the outer (ray) usually absent; the flower-bracts dark brown or black, the outer ones triangular and fringed; the achenes with or without a crown of short, stiff calyx-hairs (pappus). [As just described in the genus Centaurea.] The stem 6 inches to 3 feet high, wiry, angular, much thickened beneath the flower-heads, with the upper leaves strap-shaped, narrow, and the lower toothed, with a few small lobes at the base. [*Plate* 72.

Very common. Roadsides, fields. June—October. Perennial.

Great Knapweed. (Centaurea Scabiosa, Linn.)—Very similar to the Black Knapweed, but with the outer florets large and rayed, the bracts with brown fringed margins, the achenes crowned with hairs (pappus), and the leaves deeply lobed (pinnatifid).

Common. Roadsides, dry pastures. July—September. Perennial.

Corn Flower, Blue Bottle, Blue Cap, Blue Bonnet, Hurt Sickle. (Centaurea Cyanus, Linn.)—The flower-heads solitary, forming a loose cluster (cyme); the outer florets (ray) large, few, divided into 5 or 6 triangular teeth, without stamens and carpels (neuter), brilliant blue; inner (disk) florets pale purplish-rose with a blue limb and purple anthers; the flower-bracts exquisitely marked, soft green in the centre, edged with silvery-yellow, and a purplish or brown fringe; and the achenes crowned with the short, stiff calyx-hairs (pappus). [As just described in the genus Centaurea.] Stem 1–2 feet high, wiry, grooved, slightly branched, and cottony, the leaves being narrowly lance-shaped, the lower ones toothed, silvery-green. [*Plate* 72.

The juice of the petals makes good blue ink, and dyes linen a beautiful but not permanent blue.

Becoming uncommon. Turnip- and corn-fields. Very common in gardens. July—October. Annual or biennial.

Rough Star Thistle, Jersey Star Thistle. (Centaurea aspera, Linn.)—A very rare species [as described in the genus Centaurea], with pale purple florets, the outer (ray), and the inner (disk) being equal in length; and the outer flower-bracts each having 3-5 reddish spines $\frac{1}{8}$–$\frac{1}{4}$ inch long.

Very rare, only found in the Channel Isles. July—September. Perennial.

Common Star Thistle. (Centaurea Calcitrapa, Linn.)—The flower-heads solitary and stalkless (sessile), terminating the stem and branches; the outer and inner florets equal, pale purple-rose; the outer flower-bracts ending in a stout yellow spine $\frac{1}{2}$–1 inch long, with 1–5 short spines near the base on either side. [As described in the genus Centaurea.]

Rare. Found in the south and east on gravel or sand. July—August. Annual or biennial.

***St. Barnaby's Thistle, Yellow Star Thistle. (Centaurea solstitialis, Linn.)**—Not a native. The outer (ray) florets shorter than the inner (disk), bright yellow; the flower-bracts ending in long needle-like spines $\frac{1}{2}$–1 inch long, with 2 or 3 short spines on either side near the base; and the leaves continued down the stem (continuously winged or decurrent).

Rare. Introduced into lucerne and sainfoin fields in the south-east. July—September. Annual.

CHICORY. (CICHORIUM, LINN.)—A genus containing only two species, the following, and the Endive (Cichorium Endivia) of our vegetable gardens. Flower-heads stalkless (sessile) in small

clusters up stiff, branching stems. Florets all strap-shaped (ligulate), 5-toothed, pale, clear blue. Flower-bracts in two rows, the outer 5 in number, short; the inner 8 or 10, united at the base, and turned back after flowering. Calyx-tube surmounted with minute erect scales; petals 5, united at the base into a tube and spreading into a flat, strap-shaped limb which is 5-toothed; stamens 5, with the anthers united; carpels 2, united; fruit an achene crowned with the minute erect scales of the calyx in 1 or 2 rows. Stout, perennial herbs with a milky juice.

Wild Chicory or Succory. (**Cichorium Intybus, Linn.**)—The only British species (as just described). The bright blue flower-heads large, 1–1½ inches across, in twos or threes up the branches; the stem 1–4 feet high, rough, angular, tough; the upper leaves lance-shaped, clasping the stem (amplexicaul), and the lower lobed, with the lobes pointing towards the base (runcinate). [*Plate* 73.

Fairly common. Waste places, roadsides, on chalk. July—October. Perennial.

SWINE'S or LAMB'S SUCCORY. (**ARNOSERIS, GÆRTN.**)—A genus consisting of the one species—

Lamb's Succory, Dwarf Nipplewort. (**Arnoseris pusilla, Gærtn.**)—The flower heads ¼–½ inch across, on leafless stems (scapes), simple or slightly branched at the top, each branch being terminated by a yellow flower-head. Florets all strap-shaped (ligulate), yellow. Flower-bracts in 2 rows. Calyx-tube surmounted with a narrow border or a ring of hairs; petals 5, united at the base into a tube, and spreading into a flat, 5-toothed limb (ligulate); stamens 5, with the anthers united; carpels 2, united; fruit an achene crowned with the border or hairs of the calyx. Flower-stems hollow, milky, gradually thickening up to the flower-heads; leaves in a rosette, only growing from the root (radical) egg-shaped, with the broad end towards the apex (obovate), toothed.

Rare, local. Chiefly in the eastern counties. June—August. Annual.

NIPPLEWORT. (**LAPSANA, LINN.**)—Flower-heads small, terminating the stem and branches. Florets all strap-shaped (ligulate), 8–12, pale yellow. Flower-bracts in 2 rows, the outer row minute. Calyx-border uncrowned; petals 5, united into a tube at the base, and spreading into a 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; carpels 2, united; fruit a ribbed achene, uncrowned. Herbs with milky juice, and lower leaves deeply lobed towards the midrib, with the terminal lobe much the largest (lyrately-pinnatifid).

Common Nipplewort. (**Lapsana communis, Linn.**)—The only British species (as just described). The flower-heads numerous, ¼–½ inch across; the flower-bracts narrow (linear), stiff; the stem 8 inches to 3 feet high, erect, branched, and the upper leaves small, oval, or egg-shaped (ovate), slightly toothed (dentate). [*Plate* 73.

Very common. Waste places and hedgerows. July—August. Annual.

OX-TONGUE. (**PICRIS, LINN.**)—Flower-heads in loose terminal clusters (corymbs). Florets all strap-shaped (ligulate), yellow, the outside ones sometimes reddish on the under side. Flower-bracts in 2 rows. Calyx-tube surmounted with hairs; petals 5, united into a tube at the base, and spreading into a 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; carpels 2, united; fruit an achene, crowned with the calyx-hairs (pappus), the inner of which are feathery (plumose). Rough, branched herbs, with undivided or deeply lobed (pinnatifid) leaves, and milky juice.

Hawkweed Ox-tongue. (**Picris hieracioides, Linn.**)—As just described. The flower-heads numerous, 1 inch across, yellow, growing in a fairly flat-topped terminal mass (corymb), the

PICRIS
ECHIOIDES.
WILD
CHICORY or
SUCCORY.
SMOOTH
HAWK'S
BEARD
COMMON
NIPPLE-
WORT.
LAPSANA COMMUNIS.
BRISTLY
OX TONGUE

stem 2–3 feet high, branched, with hooked, bristly hairs, and narrow, rough, toothed leaves, the upper generally half clasping the stem (semi-amplexicaul).
Local. Common on limestone and chalky soil. Waste places and borders of fields. June—October. Biennial.

Bristly Ox-tongue. (**Picris echioides, Linn.**)—Flower-heads in an irregular terminal mass (corymb), the outer row of flower-bracts consisting of 3–5 large, heart-shaped (cordate) leafy bracts with bristly, spiny margins. [As just described in the genus Picris.] Stem 2–3 feet high, erect, stout, with a milky juice, and numerous prickle-like hairs springing from raised white spots, the leaves with white warts and prickle-like bristly hairs; the upper ones lance-shaped and clasping the stem (amplexicaul), the lower and root (radical) leaves oblong. [*Plate* 73.
Common in most parts of England and south-east Scotland. Waste places, waysides, cultivated fields. July—October. Annual.

HAWK'S-BEARD. (**CREPIS, LINN.**)—Flower-heads small, terminating the stem and branches so as to form a more or less loose cluster (corymb). Florets all strap-shaped (ligulate), yellow, orange, red, or pink. Flower-bracts many, narrow, in 2 rows, the outer shorter. Calyx-tube surmounted with simple hairs; petals 5, united into a tube at the base and spreading into a flat, 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; fruit an achene thinning at the top, often into a beak, and crowned with the silky calyx-hairs (pappus). Herbs with a milky juice.

Stinking Hawk's-beard. (**Crepis fœtida, Linn.**)—As just described. The flower-heads $\frac{3}{4}$ inch across, drooping in bud, almost solitary, yellow; the flower-bracts hairy; the achenes beaked; the stem 9 inches to 2 feet high, often with many branches thickening up to the flower-heads; and the leaves chiefly from the root (radical), deeply lobed, with the lobes turned back and pointing towards the base (runcinate).
Rare. In chalky or shingly places. June—July. Annual or biennial.

Small Rough Hawk's-beard. (**Crepis taraxacifolia, Thuill.**)—Flower-heads $\frac{3}{4}$ inch across, erect in bud, terminating the stem and branches in a fairly flat cluster (corymb); the florets yellow, the back of the exterior ones striped with red; the flower-bracts greyish with soft hairs; and the achenes beaked. [As just described in the genus Crepis.] The stem 6 inches to 2 feet high, the upper half branched, hairy; and the leaves deeply lobed, with the lobes turned back pointing towards the base (runcinate).
Local. In chalky or limestone districts. June—August. Biennial.

***Bristly Hawk's-beard.** (**Crepis setosa, Hall, fil.**)—Not a native; introduced with clover-seed. Very similar to the following species, Smooth Hawk's-beard, but differing in having stiff bristles on the stalks and bracts, in the achenes being beaked, and in the florets being a brighter yellow.
Not native. Cultivated fields. July—August. Annual.

Smooth Hawk's-beard. (**Crepis virens, Linn.**)—Flower-heads $\frac{1}{4}$–$\frac{3}{4}$ inch across, erect in bud, terminating the stem and branches in a loose cluster (corymb); the florets yellow; the flower-bracts sometimes with gland-tipped hairs; and the achenes not beaked. [As just described in the genus Crepis.] Stem variable, sometimes a single, stout, erect, leafy stem, 2–3 feet high, and at other times with many small hairy stems 6 inches high. Leaves of the stem narrow (linear), shaped like an arrow-head (sagittate); of the root (radical), deeply lobed towards the midrib with the terminal lobe the largest (lyrate). [*Plate* 73.
Common. Dry waste places, wall-tops, etc. June—September. Perennial.

Large Rough Hawk's-beard. (**Crepis biennis, Linn.**)—Very like the Small Rough Hawk's-beard (Crepis taraxacifolia), but having larger flower-heads, and a stouter, more leafy stem. Rare, local. Roadsides, etc., on chalky ground. June—July. Biennial.

Scabious-leaved or Blunt-leaved Hawk's-beard. (**Crepis succisæfolia, Tausch.**)—Flower-heads few, erect in bud, terminating the stem; the florets yellow; the flower-bracts with a few gland-tipped hairs; and the achenes not beaked. [As described in the genus Crepis.] Stem 1–2 feet high, erect, slender; the leaves of the stem oblong and half-clasping the stem (semi-amplexicaul), and those of the root (radical) oblong, broader at the tip and narrowing at the base (spathulate).

Rare. By mountain streams and in woods, only in the north. July—August. Perennial.

Marsh Hawk's-beard. (**Crepis paludosa, Mœnch.**)—Flower-heads few, terminating the stem and branches in a loose cluster (corymb); the florets yellow; the flower-bracts with numerous black, gland-tipped hairs; and the achenes not beaked. [As described in the genus Crepis.] Stem 1–3 feet high, slender, only branched above, not hairy, leafy; the leaves of the stem large, oval and clasping the stem (amplexicaul), those of the root (radical) oblong.

Not uncommon in damp woods in the north. July—September. Perennial.

HAWKWEED. (**HIERACIUM, LINN.**)—Flower-heads large, many-flowered, either solitary on leafless stalks (scapes) or in loose clusters (panicles). Florets all strap-shaped (ligulate), yellow, rarely orange. Flower-bracts many, unequal, overlapping one another (imbricated), in several rows. Calyx-tube surmounted by a ring of simple, bristly hairs; petals 5, united into a tube at the base and spreading into a flat, 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; carpels 2, united; fruit an achene crowned with a ring of simple, stiff, brownish calyx-hairs (pappus). Herbs with a milky juice and leaves chiefly from the root (radical).

This is the most difficult genus of this family. There are over 100 different species in it, and these often have many varieties; most of them are rare, being chiefly found on Scotch mountains. Descriptions of the commoner kinds only will be given here.

Mouse-ear Hawkweed. (**Hieracium Pilosella, Linn.**)—As just described. Flower-heads solitary, on stalks from the root (scapes); the florets bright lemon-yellow, the outer ones streaked with red on the back; the flower-bracts covered with black, gland-tipped hairs. Flower-stalks 2–15 inches high, leafless, hairy; the leaves all from the root (radical), oblong and entire, with long, soft, white hairs. A plant with long, soft, silky hairs and branches (runners) which run along the ground, root, and form other plants. [*Plate* 74.

Common. Dry banks, wall-tops, hillsides, etc. May—August. Perennial.

***Orange Hawkweed.** (**Hieracium aurantiacum, Linn.**)—Not a native; a garden escape; the small flower-heads in a dense terminal cluster (corymb), the florets brownish-red, and the flower-bracts dark.

Not a native. Pastures and woods in Scotland and the north of England. June—August. Perennial.

Wall Hawkweed. (**Hieracium murorum, L.pt.**)—A variable plant. Flower-heads small, less than 1 inch across, 5–15 together on short flower-stalks in a compact cluster (corymb); the florets yellow; the flower-bracts numerous, dark olive. [As described in the genus Hieracium.] Stem 12–18 inches high, with rarely more than one leaf on it; the leaves oval or egg-shaped (ovate), chiefly from the root in a rosette.

Local. On walls and rocks on high ground, June—July. Perennial.

Common Hawkweed. (**Hieracium vulgatum, Fr.**)—A variable plant. Flower-heads many, about 1 inch across, in a loose cluster (corymb), terminating the stem and branches; the

MOUSE-EAR
HAWKWEED,
HIERACEUM
PILOSELLA.
GOAT'S
BEARD,
JACK-GO TO-
BED-AT-NOON.
TRAGOPOGON PRATENSE
var. minus.
LONG-
ROOTED
CAT'S EAR,
HYPOCHŒRIS
RADICATA.

florets yellow; and the flower-bracts hoary. Stem 1–3 feet high, leafy; the leaves oblong or lance-shaped, and toothed (dentate), those of the root (radical) in a loose rosette, and those of the stem more numerous than in the last species, the upper stalkless (sessile).
Common. Woods and banks. July—September. Perennial.

Shrubby Hawkweed. (Hieracium boreale, Fr.)—A variable plant. Flower-heads large, numerous, in a large cluster (panicle or corymb), terminating the stem and branches; the flower-stems having minute bracts which pass insensibly into the flower-bracts; the florets yellow; and the flower-bracts numerous and olive-green. [As described in the genus Hieracium.] Stem 2–4 feet high, erect, rigid, very leafy, often purplish; the leaves are all on the stem and are very numerous, oval, and toothed (serrate).
Common. Woods and banks. August—September. Perennial.

Narrow-leaved Hawkweed. (Hieracium umbellatum, Linn.)—Flower-heads large, terminal, in a dense cluster (umbellate-corymb) terminating the stem; the flower-stalks having small bracts which pass insensibly into the flower-bracts; the florets yellow; the flower-bracts broad, with the tips curved outwards, olive-green. [As described in the genus Hieracium.] Stem 1–4 feet high, wiry, leafy, with the leaves all on the stem, narrow, strap-shaped, toothed, and stalkless (sessile).
Common. Woods and rocky places. July—September. Perennial.

CAT'S-EAR. (HYPOCHŒRIS, LINN.)—Flower-heads many-flowered, large, solitary or in a loose cluster. Florets all strap-shaped (ligulate), yellow. Flower-bracts numerous, equal, overlapping one another (imbricated) in several rows. Calyx-tube surmounted with a ring of hairs; petals 5, united into a tube at the base and spreading into a 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; carpels 2, united; fruit an achene, sometimes lengthened into a beak, crowned with the calyx-hairs (pappus), which are sometimes feathery. Herbs with a milky juice, the leaves chiefly from the root (radical) in a rosette.

Smooth Cat's-ear. (Hypochœris glabra, Linn.)—As just described. The flower-heads small, solitary, terminating the stem and branches; the florets pale yellow; the flower-bracts few, as long as the florets. Flowering-stems 3–18 inches high, numerous and slender, slightly thickening upwards, usually leafless, with a few bracts; the leaves all from the root (radical) in a rosette, oblong, more or less deeply toothed (dentate), wavy, and smooth.
Rare. Dry sandy fields and waste places. June—August. Annual.

Long-rooted Cat's-ear. (Hypochœris radicata, Linn.)—Flower-heads large, in a very loose cluster; the florets deep yellow; the flower-bracts numerous, narrow, tinged with red. [As just described in the genus Hypochœris.] The flower-stems are 6–18 inches high, slightly thickening towards the flower-head, smooth, much branched, usually without leaves, having only a few bracts; the leaves all from the root (radical) in a rosette, oblong, wavy, lobed towards the midrib (pinnatifid), sometimes with the lobes pointing to the base (runcinate), hairy. [*Plate* 74.
Common. Fields and waste places. June—September. Perennial.

Spotted Cat's-ear. (Hypochœris maculata, Linn.)—Flower-heads large and solitary, terminating the stem, which is rarely branched; the florets dark yellow; the flower-bracts narrow, numerous, the outer fringed with curly hairs. [As described in the genus Hypochœris.] Flower-stems 6–12 inches high, solitary or few, stout, erect, not thickening upwards, now and then with a few small bracts below the flower-heads; the leaves usually all from the root (radical) in a rosette, broadly oval, toothed, not lobed, rough, often spotted with dark purple.
Rare. Chalky and limestone hills. July—August. Perennial.

GOAT'S-BEARD. (TRAGOPOGON, LINN.)—Flower-heads large, solitary. Florets all strap shaped (ligulate), yellow, purple, or lilac. Flower-bracts 8–16 in 1 row, equal, long, narrow, united at the base. Calyx-tube surmounted with feathery hairs; petals 5, united into a tube at the base and spreading into a 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; carpels 2, united; fruit an achene, lengthened into a beak and crowned with the feathery calyx-hairs (pappus). Herbs with narrow, grass-like, alternate leaves, and a milky juice.

Goat's-beard, Jack-go-to-bed-at-noon. (Tragopogon pratense, Linn.)—As just described. The flower-heads large and solitary, closing at noon; the florets varying in length, yellow; the flower-bracts sometimes about equal in length to the florets, sometimes shorter; and the head of achenes about 3 inches across. Stem 1–2 feet high, branched, thickened upwards, with the juice milky; the leaves narrow, grass-like, alternate, entire, clasping the stem (amplexicaul). [*Plate* 74.
Common. Waste places and meadows. June—July. Biennial.

***Salsify. (Tragopogon porrifolium, Linn.)**—Not a native. Very like the last, but having purple florets.
Rare. Naturalised in moist meadows in the south of England. May—June. Perennial.

HAWK-BIT. (LEONTODON, LINN.)—Flower-heads large, on leafless stalks from the root (scapes). Florets all strap-shaped (ligulate), yellow, the outer ones often green or reddish on the back. Flower-bracts numerous, in 2 or 3 rows, the outer shorter. Calyx-tube surmounted with feathery hairs or scales; petals 5, united into a tube at the base and spreading into a 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; carpels 2, united; fruit an achene, sometimes beaked, crowned with the feathery hairs (pappus) or the scales of the calyx. Herbs with a milky juice, and all the leaves from the root (radical) in a rosette.

Hairy Hawk-bit or Thrincia. (Leontodon hirtus, Linn.)—As just described. The flower-heads solitary, $\frac{1}{2}$–$\frac{3}{4}$ inch across, drooping in bud, on leafless stalks 2–12 inches high (scapes), which thicken beneath the flower-head and are slightly hairy; the florets yellow; the flower-bracts not hairy (glabrous); and the leaves all from the root (radical) in a rosette, narrowly oblong and toothed (dentate).
Common. Moors, dry places. July—August. Perennial.

Rough Hawk-bit. (Leontodon hispidus, Linn.)—A very similar plant, though taller, with larger flower-heads, $1\frac{1}{2}$ inches across, of a deep yellow; flower-bracts and stalks hairy to woolly; and leaves deeply lobed, with the lobes pointing towards the base (runcinate). [*Plate* 75.
Common. Pastures, heaths, and waste places, especially on chalky or sandy soil. June—September. Perennial.

Autumnal Hawk-bit. (Leontodon autumnalis, Linn.)—Again a similar plant to the Hairy Hawk-bit, but taller, the flower-heads erect in bud, deep yellow, and not solitary; the flower-bracts without hairs (glabrous); the flower-stems branched, 6–18 inches high, with many bracts; and the leaves narrowly oblong, either deeply lobed (pinnatifid) or only toothed (dentate).
Very common. Fields and waste places. August—September. Perennial.

DANDELION. (TARAXACUM, HALL.)—Flower-heads large, solitary on leafless stalks from the root (scapes). Florets all strap-shaped (ligulate), deep yellow, the outer often streaked with olive-green or red on the back. Flower-bracts smooth (glabrous), in 2 rows, the inner erect and equal, the outer often turned back. Calyx-tube surmounted with simple hairs; petals 5, united into a tube at the base and spreading into a 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; carpels 2; fruit an achene, beaked, and crowned with the simple white

COMMON
SOW-THISTLE
SONCHUS
OLERACEUS
IVY-
LEAVED
LETTUCE.
LACTUCA
MURALIS.
ROUGH
HAWK-
BIT.
LEONTODON
HISPIDUS.

calyx-hairs (pappus). Herbs with a milky juice, and all the leaves from the root (radical), very deeply lobed, with the lobes turned downwards, pointing towards the base (runcinate).

Common Dandelion. (Taraxacum officinale, Web.)—The only British species, as just described, of which there are 4 varieties, differing from one another in the outer flower-bracts being sometimes turned back and sometimes erect, and in variations in the colour and lobing of the leaves. Root long, narrow, tapering (tap-root). A valuable medicine. [*Plate* 64.
Very common everywhere. March—October. Perennial.

LETTUCE. (LACTUCA, LINN.)—Flower-heads small, numerous, few-flowered, in a much-branched, usually rather straggling cluster (panicle.) Florets all strap-shaped (ligulate), yellow, blue, or purple. Flower-bracts few, in 2–4 rows, those of the outer row much shorter. Calyx-tube surmounted with simple hairs; petals 5, united at the base into a tube, and spreading into a 5-toothed, strap-shaped limb (ligulate); stamens 5, with the anthers united; carpels 2, united; fruit an achene, beaked, crowned with the calyx-hairs (pappus). Herbs with leafy, branched stems, and milky juice.

Strong-scented or Acrid Lettuce. (Lactuca virosa, Linn.)—As just described. The small flower-heads $\frac{1}{2}$–$\frac{3}{4}$ inch across, in a branched cluster (panicle); the florets pale yellow the flower-bracts often tinged with red, and the achenes purplish-black; the stem 18 inches to 6 feet high, rough, with small prickles, simple below, and much branched above, often spotted with purple; the leaves of the root (radical) oblong, undivided, 6–18 inches long, wavy, toothed (dentate); of the stem, oblong, stalkless (sessile), with 2 rounded lobes at the base (auricles), clasping the stem (amplexicaul); the lower leaves often spotted with black. The whole plant with a bluish bloom (glaucous), and a bitter juice.
Rather rare. Banks, cliffs. July—August. Biennial.

Prickly Lettuce. (Lactuca Scariola, Linn.)—A very similar plant, though less prickly; the fruit grey; the branches and leaves more erect; the leaves oblong, the lower ones more deeply lobed (pinnatifid), the upper ones usually entire, with the lobes clasping the stem, and pointing downwards like an arrow-head (sagittate); the whole plant is of a deeper green, and has less bluish bloom.
Very rare. Waste places. July—August. Biennial or annual.

Least Lettuce. (Lactuca saligna, Linn.)—Another similar plant, with grey fruit; the flower-heads growing in small, short, erect clusters up the stem (sub-spicate), which is smooth and slender; the upper leaves narrow, entire, and shaped like a halbert (hastate) at the base.
Very rare. Chalky pastures near the sea. July—August. Biennial.

Ivy-leafed Lettuce. (Lactuca muralis, Fresen.)—Another similar plant, with larger flower-heads, $\frac{2}{3}$ inch across, each made up of 5 florets, pale yellow, in a slender, much-branched, angular, straggling cluster (panicle); the flower-bracts few, in 2 rows, the inner long and equal, the outer few and minute, reddish; the achenes purplish-black. [As described in the genus Lactuca.] The stem 9 inches to 3 feet high, slender and smooth (glabrous); the leaves pale green, bluish-grey (glaucous) underneath; those of the root (radical) deeply lobed towards the midrib, with the terminal lobe much the largest (lyrately-pinnatifid); those of the stem, few, small, with very narrow bases, clasping the stem, and spreading into a halbert-shaped point (hastate). [*Plate* 75.
Rather rare. Walls, shady rocks. June—August. Annual.

Blue Sow-thistle. (Lactuca alpina, Benth.)—A very rare species, only growing on the Lochnagar and Clova mountains, where collectors are eradicating it. It has pale blue flower-heads, 1 inch across, in long terminal clusters (racemes) fleshy stems 3 feet high, with the upper

leaves narrow and undivided, and the lower ones lobed towards the midrib with the terminal lobe the largest (lyrately-pinnatifid.)

Very rare. Scotch mountains. August—September. Perennial.

SOW THISTLE. (SONCHUS, LINN.)—Flower-heads large, in terminal clusters (corymbs). Florets all strap-shaped (ligulate), yellow. Flower-bracts numerous, overlapping, in several rows, the outer ones much shorter. Calyx-tube surmounted with simple hairs; petals 5, united at the base into a tube and spreading into a 5-toothed, strap-shaped limb (ligulate); stamens 5, the anthers united; carpels 2, united; fruit an achene, crowned with the silky, simple calyx-hairs (pappus). Stems leafy, succulent, brittle; juice milky. Herbs with alternate, toothed (dentate) or lobed (pinnatifid) leaves.

Common Sow-thistle. (Sonchus oleraceus, Linn.)—As just described. The flower-heads ¾–1 inch across, crowded in terminal masses (corymbs), several flower-branches starting from the same point at the top of the stem (umbellate); the florets pale yellow; the flower-bracts smooth; the stem 1–3 feet high, smooth, thick, hollow, branched, full of a milky juice; and the leaves smooth, lance-shaped, toothed (dentate), shiny, bright green, with a slight bluish bloom (glaucous), more or less lobed towards the midrib (pinnatifid), the upper ones clasping the stem (amplexicaul). [*Plate* 75.

This plant is a favourite food of rabbits, pigs, and sheep.

Very common. Waste places, gardens. June—August. Annual.

Rough Sow-thistle. (Sonchus asper, Hoffm.)—A very similar plant, with the leaves wavy and spinous but not lobed.

Very common. Waste places and gardens. June—August. Annual.

Corn Sow-thistle. (Sonchus arvensis, Linn.)—Flower-heads very large and handsome, 1–2 inches across, crowded in terminal masses (corymbs); the florets bright yellow; the flower-bracts covered with long, gland-tipped hairs. [As described in the genus Sonchus.] The stem 18 inches to 5 feet high, simple, branched above, hollow, and angular, the upper part covered with gland-tipped hairs; the leaves sharply toothed, wavy, smooth; the lower ones narrowly lance-shaped, undivided or deeply lobed (pinnatifid), with the lobes pointing downwards towards the base (runcinate); the upper lance-shaped and generally undivided, clasping the stem (amplexicaul.)

Common. Fields and cultivated ground. August—September. Perennial.

Marsh Sow-thistle. (Sonchus palustris, Linn.)—A very similar species to the Corn Sow-thistle, but with smaller flower-heads, ¾–1 inch across; pale yellow florets; flower-bracts with gland-tipped hairs; stem 3–7 feet high, unbranched; and toothed (dentate) leaves; the lower deeply lobed (pinnatifid), with the lobes pointing downwards towards the base (runcinate); the upper ones stalkless (sessile), long, narrowly acute, arrowhead-shaped (sagittate) at the base.

Very rare. Marshes, by tidal rivers, fens. July—August. Perennial.

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